

Training Zones for Endurance Athletes

Training zones allow you to structure your weekly sessions in the most effective manner and ensure that you successfully reach your objectives. There are 3 methods for incorporating training zones into your weekly schedule, these are:

1. Heart rate
2. Power (cycling)
3. Pace (running)
4. Perceived effort

Using Heart Rate (HR) to establish Training Zones

You will need a heart rate monitor if you wish to use heart rate training zones, taking your pulse will not be accurate enough and not practical. When purchasing a heart rate monitor the basic features required are a visual HR display, the ability to set lower and upper limits and an alarm which warns you when you go outside these limits.

Heart rate training is an easy way to ensure that your weekly training is structured and effective, there are 2 ways to establish HR zones, these are:

1. Maximum HR
2. Threshold HR

Establishing zones from maximum HR generally involves either a simple calculation to estimate your maximum HR such as 220-age, or the completion of a progressive maximal exercise test to find your true maximum HR. Using threshold HR is more complex but more accurate for athletes, this involves the calculation of threshold by completing either a laboratory or field test such as the running T15 test and cycling CP20 test.

Benefits of Heart Rate Training

1. Cost - HR monitors are relatively cheap to purchase
2. Intensity - HR monitors give an accurate gauge to how hard your body is working

Limitations of Heart Rate Training

1. Fatigue – if you are a little tired from the previous day your HR may be elevated, by contrast if you have completed several days or weeks hard training and you feel very ‘run down’, your HR will be lower than normal.
2. Weather – HR will be higher in hot weather and lower in cold weather.
3. Adrenaline – when excited such as race conditions, your HR will be higher.
4. Response time – HR is very slow to respond to changes in pace, even when running very hard it may take several minutes for HR to rise to the expected level.
5. Cardiac drift – HR does not stay stable if you run at one pace, you may exercise for 40 minutes and your running speed may not change but HR will progressively rise throughout the workout.

Using Pace to establish Training Zones (Running)

Pace can be used for running but you will need a GPS system if you wish to use pace training zones, these are increasingly common and worn on the arm or as a ‘pod’ on the running shoe. The GPS system can be calibrated to display your current running speed as Kph. If you have access to a GPS system it can be used very effectively to establish training zones, to calculate the zones you must first calculate ‘Threshold Speed’ by completing a field test such as the running T15 test.

Benefits of Pace Training

1. Real time – HR can take time to rise to the expected level, a GPS system informs you from the first step if you are running within the correct zone.
2. Accuracy – Irrelevant of temperature, fatigue and weather conditions, the GPS system gives accurate feedback.
3. Pace practice – If your goal is to run a specific time for a 10k or half marathon, the GPS will allow you to run at the exact race pace required.

Limitations of Pace Training

1. Cost – GPS systems are more expensive to buy than HR monitors.
2. Intensity – they do not tell you how hard your body is working, only the speed you are running at.

Using Power to establish Training Zones (Cycling)

Power can be used for cycling but you will need a power system such as SRM or Powertap if you wish to use power training zones. Alternatively you may have a power reading function on your turbo trainer which is becoming increasingly common. If you have access to a power system it can be used very effectively to establish training zones, to calculate the zones you must first calculate 'Threshold Power Output' by completing a field test such as the running CP20 test.

Benefits of Power Training

4. Real time – HR can take time to rise to the expected level, a power system informs you from the first step if you are within the correct zone.
5. Accuracy – Irrelevant of temperature, fatigue and weather conditions, the power system gives accurate feedback.
6. Pace practice – If your goal is to ride a specific time for a time trial event, power can be used very accurately to gauge the effort required.

Limitations of Power Training

3. Cost – power systems are far more expensive to buy than HR monitors, but turbo trainers less so.
4. Intensity – they do not tell you how hard your body is working, only the power you are generating.

Using Perceived Effort (PE) to establish Training Zones

To use perceived effort as your gauge for training intensities you do not require a HR monitor, power or GPS system but you do require a great deal of experience. If you intend to use HR, power or GPS to establish your training zones you should also use PE as a secondary system.

Perceived effort simply refers to using your own 'pace judgement' during training sessions, if a training run requires you to run at 'marathon pace' you should be capable of running at that chosen speed and intensity without use of any GPS or HR monitors. Alternatively if your training session stipulated 25 miles cycle time trial pace, you should be capable of riding at this intensity from experience alone. To do this successfully you will need significant experience but when used as a secondary system it can also be very useful, such as the example below:

*You are completing a run session at 10k running pace but your HR is much lower than anticipated due to fatigue. If you choose to follow your HR monitor only you will push yourself far too hard in an attempt to reach the required HR level, if you use perceived effort in conjunction with HR you will realise that you are already running at 10k speed and choose to ignore the low HR reading.

Benefits of Perceived Effort Training

1. Cost – no equipment required.
2. Accuracy – You are running from 'feel' and this helps you improve tune with your body.
3. Flexibility – You should always use PE as a secondary system, even when using HR, power or GPS.

Limitations of Perceived Effort Training

1. Experience – to use solely PE training you need significant experience and you must be capable of accurately judging intensities and paces with no additional equipment.
2. Accuracy – no direct feedback in the form of either HR, power or pace.

Marc Laithwaite

marc@theendurancecoach.com

www.theendurancecoach.com