

## How to monitor your training

It's often hard to gauge the level of effort you're making during a particular run or training session. How do you feel? Are you running fast enough? Is it too easy or are you working too hard? From our experience, we find that athletes end up either doing all their running at a steady pace or, if they are the type of athlete who thinks: harder is better, doing every run too hard. This can compromise your training and undermine your performance. By consistently training too hard your results will show a lack of consistency and you will be prone to illness or injury.

## Why use heart rate data to monitor fitness?

Our individual genetic make-up means each of us has a unique physiology and cardiovascular system, central to which is the heart. Therefore, by monitoring and improving our heart and cardiovascular system we become fitter and improve our performance. The fitness of the heart and your overall cardiovascular health is the single most significant factor in developing your potential as a runner. By tracking cardiovascular fitness and designing our training plans to improve cardiovascular performance, we are training in the most effective way.

If we measure the work rate of our heart then this is the most accurate method of determining how much benefit we are deriving from our training. There are other ways of gauging this work rate, such as how quickly we can complete a certain distance, how hard we were breathing or how tired we feel, but these can all be affected by outside influences such as terrain, weather, hydration, nutrition or mood.

The ultimate goal of training with a heart monitor is control, and to run longer and faster with a lower heart rate. If you keep track of your results, there will be a couple of ways to see the progress.

As you improve, you will see that running the same distances at the same heart rate will become easier. Effectively, you will be able to run faster for these distances without your heart having to work as hard. This is a direct reflection of the increased efficiency of your heart.

Another way to see improvement is to keep track of your resting heart rate by writing it down and recording it every morning before you get out of bed and as your fitness improves you will see a lower RHR.

## Using a heart rate monitor effectively

Many runners own a heart rate monitor but don't use it correctly. Often they don't know their correct maximum heart rate (MHR) and have not accurately calculated their own heart rate training zones. There are various formulae for working out your MHR, the most popular involves subtracting your age from the number 220 for men, or from 226 for women. Unfortunately this method is only reasonably accurate for about 80% of runners.

## What are the most effective ways of getting this information?

Having already established that you need to have accurate heart rate information to achieve positive training results, how do you get this information? You can achieve this by undergoing a personal or lab test. If you are going to undertake either test make sure you are healthy and clear of injury and illness. If you are in any doubt seek medical advice first.

### Personal test

The least expensive and most effective way to calculate your own heart rate is to do interval training, either on a slight hill over approximately 200 metres or around 400—600 metres on flat terrain such as a running track. Sprint the distance and then take a short jog to recover. If you repeat this five times you should achieve a heart rate that is very close to your MHR.

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## Laboratory test

In a lab test, you will carry out a similar exercise on a treadmill with your heart rate being monitored by a professional physiologist. They may also take small blood samples to determine your blood lactate levels, which will give more information to help determine your training zones. These tests cost £150—£200.

## What factors can affect your heart rate?

**Fatigue:** you need to be relatively fresh to be able to perform at your true level and if you have trained hard on the previous couple of days you are unlikely to be able to achieve your genuine HR.

**Weather:** you are likely to get slightly higher heart rate readings if you are running in warm conditions or if you are running on a treadmill rather than outside.

**Terrain:** you will achieve higher heart rates if you are running uphill or on a rough surface.

**Warm-up:** the duration and intensity of your warm-up will affect your heart rates in your test. A longer warm-up of moderate intensity will give higher readings than a quick, light jog, because your body temperature and muscle blood flow will be greater.

**Hydration levels:** being even slightly dehydrated can cause an increase in your heart rate.

**Other:** your heart rate can also be affected by adrenalin, stress and caffeine.

## What are the benefits of training using heart rate?

### Training too hard?

Training using accurate heart rate information enables you to train at the correct levels for your body. Many runners train too hard too often. Using your heart rate to monitor your training levels stops you putting undue stress on your body. It allows you to have the energy required to perform your harder workouts successfully and not have to take unexpected days off because of fatigue. Training at the right level for your body gives you time to deal with the training load and recover from each session, thereby avoiding illness or injury.

### Not training hard enough?

Most runners are highly motivated so this is a less common problem than over-training, but some runners simply do not train hard enough. By understanding your heart rate zones for each session your monitor can tell you when it's time to get into the correct zone. If you set a minimum and maximum heart rate zone for each run, the monitor will sound an alarm when you have dropped below your target, and this will alert you to pick up the pace.

### Pacing and heart rate in training

Using heart rate rather than pace in training is often a difficult concept for runners to grasp. It requires belief and patience. We always want to hit our pace! However, sometimes your pace is not the best measure of how hard you are working. There are so many factors that can affect what pace we achieve, the terrain, fatigue levels, the weather, how stressed we are, in fact any number of factors can cause us to think we have had a bad run when in fact this may not be the case. In our experience, if you work in the correct heart rate zones then the improvement in your pace will follow.

### Using heart rate in a race

Some runners like to use a heart monitor in a race. We believe this can be useful: for beginners who have no experience, using heart rate can help gauge their effort level. A monitor can help those who normally set off too fast or are working too hard early in the race. Using a heart rate monitor can help you run a more even effort during a race, regardless of external factors such as weather conditions, the pace of other runners, the excitement of the crowd, finding yourself isolated or the terrain of the race route. It is also useful to record your heart rate information in a race, not only to see how you performed but so this information can be used for future training.

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### **Monitoring your resting heart rate (RHR)**

Regularly monitoring the rate at which your heart beats when you are totally at rest (ie. when you wake up in the morning) is a good way of checking all is well. If you find there is an increase in your normal RHR it may indicate that you have not yet fully recovered from a hard training session, or not taken enough rest. It could signal the onset of an illness. Generally a little extra rest will see the RHR return to normal.

However you should be aware that other factors including stress, dehydration and the presence of caffeine in your system will elevate your heart rate, even when you are at rest.