

INTRODUCTION TO TRAINING WITH A HEART RATE MONITOR **by Matthew Blake**

Before you start you have to determine a few things:

Resting Heart Rate (RHR)

- Best done early in the morning when you wake up (provided you haven't had a late night, which will distort the value somewhat). Set your alarm and put on the strap and record your heart rate while you snooze for ten minutes or so. Failing that, you can resort to the finger on pulse or neck method and count beats for 10 seconds and multiply by 6. Do this for a week to obtain your average. Use this value in all calculations.
- Anything below 70bpm is good; pro athletes (especially cyclists) will be in the low 30's, so it's a very good indicator of how fit one actually is.
- As you do more endurance training it will get lower.
- Monitor it though, if it is more than 10 beats above your average then consider resting for the day, as it is either a sign of illness or over-training, but can also be due to lack of sleep, stress or the after effects of a "Phuza Thursday" or something similar, so I guess take it in context of what you were up to the night before. Training when very sick is bad though as it puts too much strain on your heart and can lead to permanent damage. A light workout to cure a slight headache after a big week-end or a slight bout of cold or flu is not a bad idea though as it usually helps to sort it out, provided you keep well hydrated throughout and keep it up all day.

Maximum Heart Rate (MHR)

- Take 220 minus your age and it will give you a value, which is fairly accurate give or take a beat or two. There are more accurate ways to determine it but this will be sufficient for now as they involve scientific testing, or a huge effort on your part.

Heart Rate Reserve (HRR)

- This is the difference between your MHR and RHR ($MHR - RHR = HRR$) and must be used when determining your zones to train in.

For the context of this I will stick to the four basic training zones, namely:

Zone 1:	“Base Training”	50-61% of MHR
Zone 2:	“Aerobic Training”	62-74% of MHR
Zone 3:	“Anaerobic Training”	75-84% of MHR
Zone 4:	“Maximal Training”	85-100% of MHR

Some info on what these terms mean:

Base training:

- This is normally done in the off-season, or after a long layoff or injury, and helps to accustom your body to the vigours of exercise again, without putting any strain on the heart, muscles and joints.
- It is vital to get plenty of this done before a hectic season or training period as avoiding it will lead to injury or burnout later on when things get tougher.

Aerobic training:

- This is for the system that replenishes energy we use for any activity
- Training it is vital as it improves the following:
 - Oxygen delivery
 - Blood pumping
 - Cooling of the body
 - Muscular co-ordination
 - Building of the capillary network in the muscles
 - **Fat-burning**
 - Energy production
 - Carbohydrate storage for the anaerobic efforts, cause you want to use the fat reserves as much as possible!
- Obviously pretty important hey!

Anaerobic training:

- This is for the system that deals with anaerobic metabolism, which occurs when the demand for oxygen by your muscles is more than the body can provide.

- It then produces lactic acid and you get that burning sensation in your legs.
- The more intense the exercise, the faster the lactic acid accumulates.
- The more you train though, the higher your lactate threshold gets, so you can go for longer before the burn sets in, but this requires lots of training to improve as your muscles and heart have to be really well conditioned, which takes plenty of time.
- This system must be trained, but not nearly as frequently as the aerobic one that must form the base, so going as fast as you can every time you run/ride is actually inefficient if you aim to really improve—something to think about!

Maximal training:

- This shouldn't be done very often and is only really necessary if you will be racing or competing in an event where a maximal effort is required.
- You would normally not devote an entire training session to this as such an effort can only last a few minutes at best and will be specific training for a sprint, attack or counter attack, really tough climb or time trial.
- Going all out once in a while is a good idea though because it really gets the blood pumping and heart working and can be used to kick your metabolism into overdrive. It can also be a test of how fit you are and how your stamina has been built up, based on how long it takes to recover from such an effort.
- Remember, once in a while, training like this all the time will just lead to exhaustion and no gains at all.

Okay, so here's an example for a 20-year-old person with a RHR of 60bpm:

MHR: 200bpm

RHR: 60bpm

HRR: 140bpm

Now using this example you work out your training zones according to this formula:

$$X\% \times (\text{HRR}) + \text{RHR} = X \text{ bpm}$$

So therefore a 50% of MHR would look like this:

$$50\% \times (140\text{bpm}) + 60\text{bpm} = 130\text{bpm}$$

Now you just work out the rest of the values according to the zones indicated above and you have your heart rates to work between, depending on the training you are doing. All that's left now is for you to work out how to put them into your HR monitor to determine your HR range for the day and away you go.

Here is an example of a basic cycling programme:

- Monday: **Active rest**
Stretching or low intensity sport like swimming or walking
- Tuesday: **Aerobic intervals**
10 min warm up in Zone 1
5 x (2 min in Zone 2 + 2 min in Zone 3)
3-5 min break between intervals
10 min cool down in Zone 1
- Wednesday: **Anaerobic threshold intervals**
10 min warm up in Zone 1
5 min in Zone 2
10 min in Zone 3
5 min in Zone 1
10 min cool down in Zone 1
- Thursday: **Aerobic steady state**
10 min warm up in Zone 1
30 min in Zone 2-Zone 3
10 min cool down in Zone 1
- Friday: **Maximal training**
10 min warm up in Zone 1
5 x (1-5 mins in Zone 4 + 5 min rest in Zone 1)
10 min cool down in Zone 1
- Saturday: **Endurance**

Sunday: 1hr or longer in Zone 1 - 3
Endurance
1hr or longer in Zone 1 - 3

This will give you some idea of how to structure your training according to your zones but is only catering for one sport and is not a triathlon training programme and only works for cycling or running.

Remember that over-training without adequate recovery time will not benefit you at all, and you should watch out for it as it leads to a loss of sleep and appetite, increased resting heart rate, fatigue, sickness and laziness. Keep a diary of your running, swimming, cycling, spinning, gym, diet, sleep, weight, resting heart rate and anything else you want to add. It's quite interesting to see how it changes, as you get fitter.

Let me know if you have questions, that is just the basics, and although most of it is based on training for cycling, the same rules generally apply throughout. You might want to buy "Runners world", "Bicycling", "Ride", "Men's Health" or "MSM" magazine; they often have specific programs for running, cycling, swimming or multisport that give you zones, heart rates, etc to achieve your goals.