

# HEART RATE TRAINING

## **The Energy Efficient or Recovery Zone - 60% to 70%**

Training within this zone develops basic endurance and aerobic capacity. All easy recovery running should be completed at a maximum of 70%. Another advantage to running in this zone is that while you are happily fat burning you may lose weight and you will be allowing your muscles to re-energize with glycogen, which has been expended during those faster paced work-outs.

## **The Aerobic Zone - 70% to 80%**

Training in this zone will develop your cardiovascular system. The body's ability to transport oxygen to, and carbon dioxide away from, the working muscles can be developed and improved. As you become fitter and stronger from training in this zone it will be possible to run some of your long weekend runs at up to 75%, so getting the benefits of some fat burning and improved aerobic capacity.

## **The Anaerobic Zone - 80% to 90%**

Training in this zone will develop your lactic acid system. In this zone your individual anaerobic threshold is found - sometimes referred to the point of deflection (POD). During these heart rates the amount of fat being utilized as the main source of energy is greatly reduced and glycogen stored in the muscle is predominantly used. One of the by-products of burning this glycogen is the runners worst enemy, lactic acid. There is a point at which the body can no longer remove the lactic acid from the working muscles quickly enough. This happens at an individual heart rate for us all and is accompanied by a rapid rise in heart rate and a slowing of your running pace. This is your anaerobic threshold or POD. Through the correct training it is possible to delay the POD by being able to increase your ability to deal with the lactic acid for a longer period of time or by pushing the POD higher.

## **The Red Line Zone 90% to 100%**

Training in this zone will only be possible for short periods of time. It effectively trains your fast twitch muscle fibers and helps to develop speed. This zone is reserved for interval running and only the very fit are able to train effectively within this zone.

## Calculation of a zone value

The calculation of a zone value, X%, is performed in the following way:

- Subtract your RHR from your MHR giving us your working heart rate (WHR)
- Calculate the required X% on the WHR giving us "Z"
- Add "Z" and your RHR together to give us the final value

Example : The athlete's MHR is 180 and their RHR is 60 - determine the 70% value

- $MHR - RHR = 180 - 60 = 120$
- $70\% \text{ of } 120 = 84$
- $84 + RHR = 84 + 60 = 144 \text{ bpm}$

## Calculation of Maximum Heart Rate

- Use the Miller formula of  $MHR = 217 - (0.85 \times \text{age})$  to calculate MHR
- Subtract 3 beats for elite athletes under 30
- Add 2 beats for 50 year old elite athletes
- Add 4 beats for 55+ year old elite athletes
- Use this MHR value for running training
- Subtract 3 beats for rowing training
- Subtract 5 beats for bicycle training

## Resting Heart Rate

To determine your resting heart rate (RHR) is very easy. Find somewhere nice and quite, lie down and relax. Position a watch or clock where you can clearly see it whilst lying down. After 20 minutes remain where you are, do not sit up, and determine your pulse rate (beats/min). Use this value as your RHR.

If you have a heart rate monitor then put it on before you lie down. After the 20 minutes check the recordings and identify the lowest value achieved. Use this value as your RHR.

My age \_\_\_\_\_

My RHR \_\_\_\_\_

My MHR \_\_\_\_\_

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