

# Heart Rate Training: A Brief Overview

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*“Quality training rather than quantity is what will make you a better athlete, no matter your level of ability”*

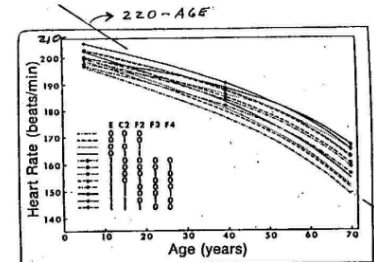
Grete Waitz, nine-time winner of the NYC Marathon

## Resting Heart Rate

Normal range: 40-60 (male); 55-70 (female); a resting HR increased by 10 % indicates fatigue and/or stress. The fitter you become, the lower your resting HR.

## Maximal Heart Rate

220-AGE = inaccurate



Accurate measurement of max heart rate requires maximum effort (4-6 min);

- Field test: warm up for 10-15 min and run as fast as possible for 1000 or 2000m and measure your HR at the end of the effort.
- Lab test: treadmill incremental pace run (increase speed by 1km/h each 2 min until exhaustion); measure your HR at the end of the effort.

## How to calculate HR Training Zones?

- Use % of maximum HR or
- Use the Karvonen Formula  $(HR^{max} - HR^{rest}) \times \% \text{ training intensity} + HR^{rest}$  to calculate your training zones:

Zone	Perception of effort	HR zone (Karvonen method)	Type of Effort
1	Easy	<60%	Warmup/ Active recovery
2	Moderate	60-75%	LSD
3	Somewhat hard	75-85%	UP- Long Tempo (2-3/workouts)
4	Hard	85-95%	Lact. Threshold
5	Very hard	95-100%	High Intensity/aerobic power
6	Very very hard	95-100%	Race

## HR Monitoring = Not a bullet-proof solution

- Required regular assessment of max. and resting HR to be an accurate way to monitor intensity
- Can fluctuate depending the terrain, weather, hydration and fatigue and stress levels
- Can fluctuate or draft on very long events (+3h)
- Maximum HR will differ between different sports. Max. HR is usually higher for running than for cycling and swimming.
- When in doubt of your HR readings, listen to your body and use your relative perception of effort; this is the measure used by elite performers.

*“The body does not get fitter through exercise; it gets fitter through recovering from exercise”*

Peter Keen, coach of Chris Boardman