

# About Heart Rate Monitors For Runners

## A discussion of what heart rate monitors actually measure

First, a few pertinent definitions....

Basically, your cardiovascular system, i.e., heart and lungs, supply oxygen to all the tissues in your body.

- Basal metabolism rate, BMR, is the minimal amount of energy necessary to maintain respiration, circulation, temperature and other vital body functions while at total rest.
- BMR Heart Rate, bpm: HRrest
- Maximum Heart Rate, bpm, HRmax
- Heart Rate Reserve: The difference between HRrest and HRmax

Suggest reading this before continuing [About Heart Rate Fundamentals \[This is a hyperlink, URL is below\]](#)

Your HRrest rate must satisfy your BMR requirement. It is determined by the volume of the heart chambers and the volume-per-stroke ejected into the vascular system.

Most experienced road runners have an HRrest of about 40bpm to about 50bpm, though rates of 35-40bpm are common.

If you read “About Heart Rate Fundamentals for Runners”, you’ll find the term “Heart Reserve”. It’s simply HRmax – HRrest.

Consider a sedentary person with an HRrest = 84bpm, who can only rest when his or her HR is 84bpm; the runner can actually fast walk or jog at a reasonably good pace with a heart rate of 84bpm because the runner’s stroke volume is twice as large.

Maximum Heart Rate [HRmax] is the maximum rate at which your heart beats to satisfy your current activity. This is a very important point! You're biking HRmax will typically be about 10bpm less than your running HRmax and your cross-country skiing will be about 10bpm higher. Why? Because biking utilizes fewer muscle groups and cross-country skiing utilizes more muscle groups.

For any heart rate monitor to be meaningful and accurate, it must use the athlete’s:

- HRrest
- HRmax for the current specific activity
- Heart Rate Reserve; HRmax - HRrest
- Percentage of the athlete's Heart Rate Reserve, and not the athlete's HRmax

This simple observation illustrates the fallacy of the so-called “Heart Target Training Zones” and “Heart Rate Training Targets” often mentioned in the literature and GPS watches.

Runner’s performance training should be based on the athlete’s  $\dot{V}O_2$ max and intended race distance.

See “[Running Performance Improvement Workouts](#)” [This is a hyperlink, URL is below] as an example.

[coach@RiderSite.org](mailto:coach@RiderSite.org) Comments are welcome. Disseminate freely.

<https://ridersite.org/AboutHeartRateFundamentals.pdf>

<https://ridersite.org/PerformanceImprovementWorkouts.pdf>