

# HEXOSKIN

Wearable  
Body  
Metrics



## Measure your Heart Rate with Hexoskin

Heart rate (HR) is the frequency of heartbeats measured in beats per minute (bpm). It varies with activity, stress, medication, stimulants (caffeine, drugs), temperature, etc. In response to external stimuli, the autonomic nervous system changes the heart pace and power to deliver more or less blood to the body.

### Why should I monitor my heart rate?

HR is a health, fitness, and performance indicator. By studying your heart rate, you can learn about your fitness condition and your cardiac response to stress. You can use heart rate to see how hard you train and target specific training zones, as well as monitor fatigue, overtraining, lack of sleep or illness and see the evolution over time.

### Heart Rate Zones

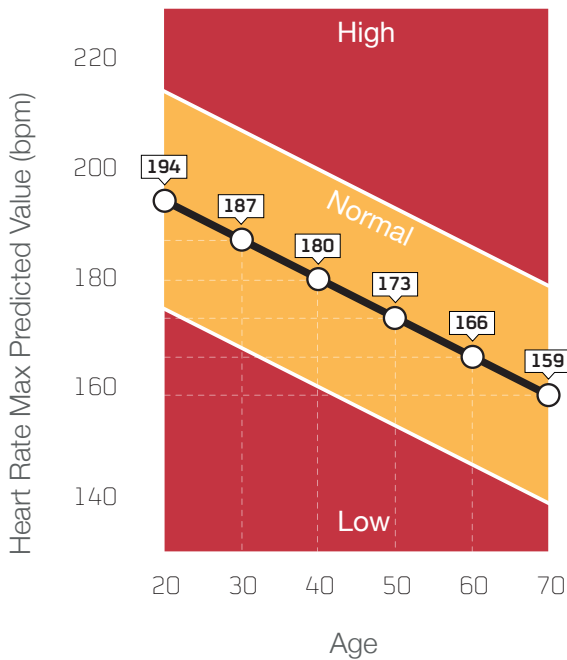
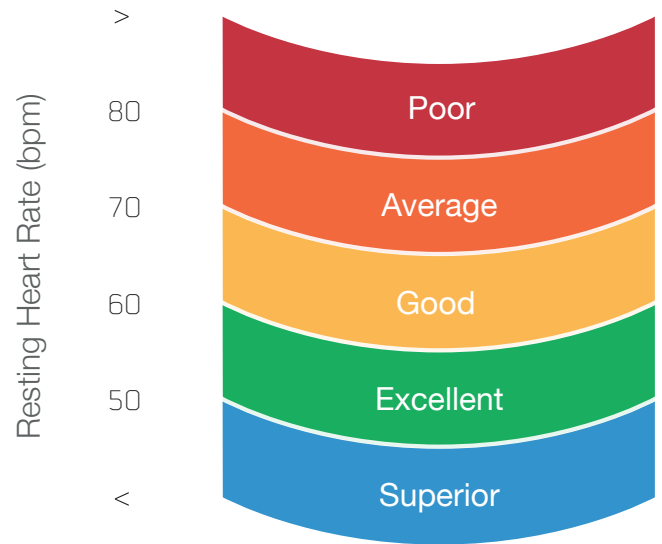
Heart rate zones are target-training zones using heart rate values. The table below shows the target zones and the way they relate to training intensities, % of maximal heart rate, example workout durations, and training benefits.

TARGET ZONES	% HRMAX	EXAMPLE DURATION	RECOMMENDED FOR	FEELS LIKE	TRAINING BENEFITS
Maximal Intensity	90-100%	Less than 5 min	Very fit persons with athletic background	Very exhausting, very heavy breathing, muscular fatigue	Increases anaerobic capacity, improves maximal performance & speed
High Intensity	80-90%	2-10 min	Fit & active persons	Muscular fatigue, heavy breathing	Increases anaerobic and aerobic capacity, improves endurance capacity
Moderate Intensity	70-80%	10-60 min	Everybody	Light muscular fatigue, easy breathing, moderate sweating	Improves aerobic fitness
Light Intensity	60-70%	10-120 min	Everybody	Easy breathing, low muscle load, light sweating	Improves basic endurance, helps recovery
Very Light Intensity	50-60%	10-240 min	Novice	Comfortable, very easy breathing	Improves overall health, helps for weight management and recovery

Based on heart rate max (HRmax) estimation from  $208 - 0,7 \times \text{age}$  formula.  
E.g. 40 yrs old, HRmax (100%) =  $208 - 0,7 \times 40 = 180\text{bpm}$

## Resting Heart Rate (HR<sub>REST</sub>)?

Resting heart rate is the lowest heart rate value measured awake, lying down, fully relaxed, and undistracted. At rest, the average heart rate is around 72-80 bpm for women and 64-72 bpm for men. This metric is affected by fitness level, age, and genetic background. It is possible to lower your resting heart rate with cardiovascular training. Endurance athletes can have a resting heart rate as low as 30 bpm.

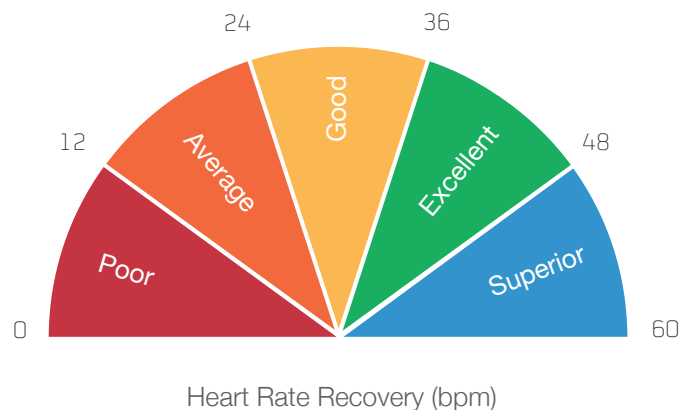


## Maximal Heart Rate (HR<sub>max</sub>)?

Maximal heart rate is the highest heart rate a person can achieve during a maximal exercise. The value depends mainly on age, genetics, exercise type, and medication. The theoretical value can be estimated with different formulas. However, to have a precise and individual value, it is better to perform a maximal capacity test. This metric normally decreases with age and it is unrelated to exercise training<sup>1</sup>.

## Heart Rate Recovery (HRR)?

Heart rate recovery is the decrease of heart rate in one minute following a peak intensity exercise. A heart rate that does not drop by more than 12bpm one minute after ending the exercise is associated to an increased risk of health issues. A high HRR is associated with good cardiovascular function. Regular aerobic training can help you increase your HRR.



### References

<sup>1</sup>. Adults who are beginning a new exercise regimen are advised to consult a physician before performing this test due to risks associated with reaching high heart rates.