What Is Heart Rate Variability (HRV)?

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Heart rate variability (HRV) is the variation in time between consecutive heartbeats.

Although the heart may appear to beat at a steady rate, the intervals between individual beats naturally change. HRV measures these small differences in timing, usually expressed in milliseconds (ms).

How Is HRV Different from Heart Rate?

Heart rate measures how many times the heart beats per minute.

HRV measures the variation in the time intervals between those beats.

For example, a heart rate of 60 BPM does not mean that every heartbeat occurs exactly one second after the previous one. The intervals can vary slightly, and HRV describes that variation.

What Does HRV Indicate?

HRV is associated with the activity of the autonomic nervous system, which helps regulate involuntary bodily functions such as heart rate and breathing.

HRV can vary in response to:

- Sleep and rest.
- Physical activity and exercise.
- Stress and emotional demands.
- Illness and fatigue.
- Hydration and other physiological factors.

HRV is highly individual. A reading should not be interpreted in isolation or compared directly with another person's reading.

How Can a Smartwatch Estimate HRV?

Where supported, a smartwatch can analyze the timing of heartbeats detected through its heart rate monitoring technology and use this information to estimate HRV.

The availability, measurement method and presentation of HRV information depend on the watch model and its software.

HRV is a general wellness measurement. It is not a medical diagnosis and should not be used on its own to assess health or recovery.