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Your heart rate. What it means, and where on Apple Watch you'll find it.

Learn how Apple Watch measures your heart rate, and get tips for a more accurate reading.

How to check your heart rate

You can check your heart rate any time using the Heart Rate app. Open the app, then wait for Apple Watch to measure your heart rate. You can also view your resting, walking, breathe, workout, and recovery rates throughout the day. To easily open the app, add the Heart Rate complication to your watch face or add the Heart Rate app to the Dock.

You can also turn on heart rate notifications, so you know if your heart rate remains above or below a chosen beats per minute (BPM), or to occasionally check for an irregular heart rhythm.

Heart rate notifications and resting and walking rates are available only on Apple Watch Series 1 or later. Irregular rhythm notifications are available only with watchOS 5.1.2 or later. To enable these notifications, you must be in the United States and you must have a device that was purchased or serviced in the United States.

When Apple Watch measures your heart rate

When you use the Workout app, Apple Watch measures your heart rate continuously during the workout and for 3 minutes after the workout ends to determine a workout recovery rate. If you don't see your heart rate, check your settings.

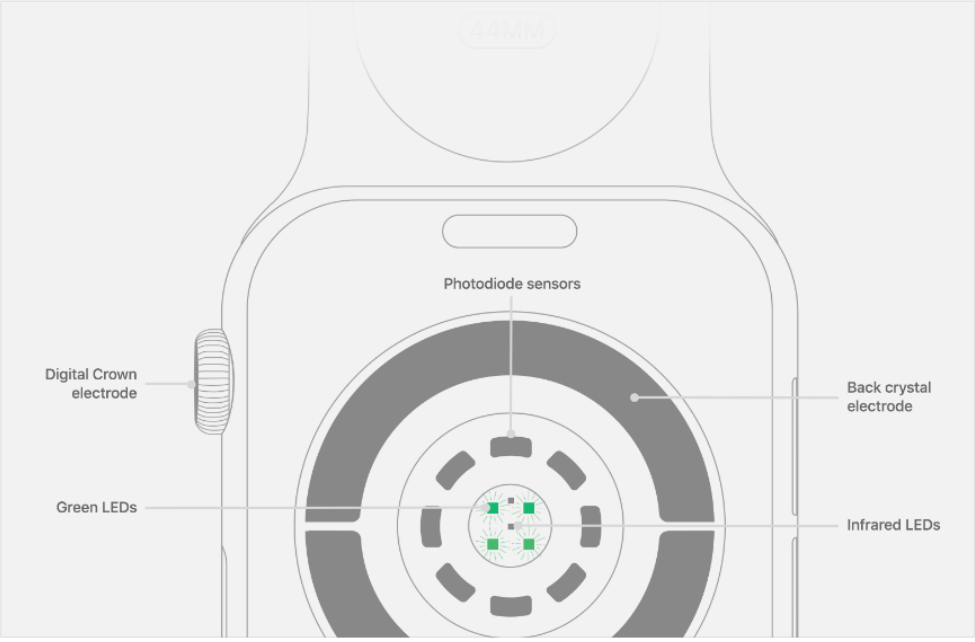
This information, as well as other data it collects, helps Apple Watch estimate how many calories you've burned. In addition, Apple Watch measures your heart rate throughout the day when you're still, and periodically when you're walking (Apple Watch Series 1 or later). Since Apple Watch takes these background readings based on your activity, the time between these measurements will vary. Apple Watch also calculates a daily resting rate and walking average by correlating background heart rate readings with accelerometer data when sufficient background readings are available. You can control which third-party apps have access to your health data from the Health app in Sources.

Some anomalies may appear in the displayed data, resulting in occasional heart rate measurements that are abnormally high or low.

How Apple Watch measures your heart rate

The optical heart sensor in Apple Watch uses what is known as photoplethysmography. This technology, while difficult to pronounce, is based on a very simple fact: Blood is red because it reflects red light and absorbs green light. Apple Watch uses green LED lights paired with light-sensitive photodiodes to detect the amount of blood flowing through your wrist at any given moment. When your heart beats, the blood flow in your wrist — and the green light absorption — is greater. Between beats, it's less. By flashing its LED lights hundreds of times per second, Apple Watch can calculate the number of times the heart beats each minute — your heart rate. The optical heart sensor supports a range of 30–210 beats per minute. In addition, the optical heart sensor is designed to compensate for low signal levels by increasing both LED brightness and sampling rate.

The optical heart sensor can also use infrared light. This mode is what Apple Watch uses when it measures your heart rate in the background, and for heart rate notifications. Apple Watch uses green LED lights to measure your heart rate during workouts and Breathe sessions, and to calculate walking average and Heart Rate Variability (HRV).



Apple Watch Series 4 also has built-in electrodes in the Digital Crown and the back of Apple Watch, which can measure the electrical signals across your heart when used with the Heart Rate app or the ECG app. When you place your finger on the Digital Crown, it creates a closed circuit between your heart and both arms, capturing the electrical impulses across your chest.

To use the electrical heart sensor to measure your heart rate, open the Heart Rate app and place your finger on the Digital Crown. You will get a faster reading with higher fidelity — getting a measurement every second instead of every 5 seconds. You'll see "ECG" in Heart Rate Context when looking at recorded data for Heart Rate in the Health app. You can also use the electrical heart sensor to take an ECG with the ECG app.

HRV measurements aren't available in mainland China, Malaysia, South Africa, and Turkey.

For best results

Start with a good fit. Even under ideal conditions, Apple Watch may not be able to get a reliable heart rate reading every time for everybody. And for a small percentage of users, various factors may make it impossible to get any heart rate reading at all. But there are things you can do to help Apple Watch get the most consistent and best heart rate readings possible. Learn what else affects your reading.

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