

Should you really use your smartwatch or fitness wearable to monitor your heart?

November 9 2022, by Jessica Orchard and Ben Freedman



Credit: AI-generated image ([disclaimer](#))

Wearable devices that can record your pulse can be handy for tracking your fitness—but can you really use them to monitor for an irregular heartbeat?

The short answer is maybe, and it depends on who you are. These

devices are great, but there are some things you need to know.

Several large studies have been carried out to examine how well wearables can check for signs of a common heart rhythm problem called "[atrial fibrillation](#)," which can lead to strokes.

In a [new Frontiers review published in *Circulation*](#), we and our colleagues in the [AF-Screen International Collaboration](#) weighed up the current evidence, including from three very large studies: the [Fitbit Heart study](#) (funded by Fitbit); the [Apple Heart study](#) (supported by Apple) and the [Huawei Heart study](#) (Huawei was involved in development and optimization of the app but did not fund the study).

What is atrial fibrillation?

Atrial fibrillation is the most common heart rhythm problem (arrhythmia). Up to [80% of patients may have no symptoms](#).

Atrial fibrillation becomes more common with increasing age, and it can substantially increase the risk of stroke. Patients at [high risk](#) of atrial fibrillation-related stroke, due to age and/or other risk factors such as hypertension and diabetes, are generally prescribed blood-thinning medication.

More and more devices for recording heart rhythm are available to consumers. These include handheld electrocardiogram (ECG) and pulse-based technology in smartwatches, other wearables and portable consumer devices. These are often marketed as "health and wellness" products.

For people aged 65 and over, [Australian](#) and other international [guidelines recommend](#) occasional screening for atrial fibrillation.

However, new technologies (including wearables) allow consumers to record their own heart rhythms whenever they wish, and continuously monitor the regularity of their pulse. This technology can empower consumers and provide important information, but it does have limitations.

How accurate are wearables and other consumer devices?

The short answer is that, for identifying atrial fibrillation, wearables are probably quite accurate ([often over 95%](#)). However, the information is often based on studies of small numbers of people.

Some devices include an algorithm that automatically says whether your heart rhythm is regular (a "normal sinus rhythm") or irregular (which may indicate atrial fibrillation). These algorithms generally require regulatory approval (such as from the [Therapeutic Goods Administration](#) (TGA) in Australia).

However, device companies often don't publish many details about the accuracy and performance of their devices. Wearables that simply track heart rate or activity without making claims about serious conditions are not regulated by the TGA.

It's important that manufacturers of health devices:

- are accurate in their health claims
- don't advertise unproven benefits
- report the accuracy and performance of their devices in different

populations.

While the [Fitbit](#), [Apple](#) and [Huawei](#) studies were very large, the calculations used to determine accuracy of the device may be based on small numbers because not many people in the study had atrial fibrillation.

For example, the [Apple Heart study](#) had 419,000 participants overall—which is a lot of people! However, the accuracy was calculated by comparing simultaneous recordings of atrial fibrillation on the smartwatch pulse irregularity detector and an ECG patch in only 86 people.

Who are they good for?

If you have symptoms, or are aged over 65, wearables can be very useful for detecting atrial fibrillation.

Wearables are great as an "event recorder" for anyone with a symptom (such as heart palpitations) that could be an arrhythmia. Devices with ECG capability such as [Apple Watch](#) Series 4 or later, [Withings Scanwatch](#) and [KardiaMobile](#) are particularly good as they provide more information. Once you have an ECG recording during a symptom, you can give it to your doctor, which can help guide further follow-up.

Wearables are also good for helping people to get an early diagnosis of atrial fibrillation. Ideally, this needs to be supported by integrated care, including risk factor reduction and [lifestyle changes](#) to reduce progression and complications (especially relevant for [young people](#) who may need no specific therapy).

We also know wearables can be used to screen enormous numbers of

people: 457,000 in the Fitbit study, 419,000 in the Apple Heart study and 188,000 in the Huawei study. However, the yield of [new atrial fibrillation detected was low](#) (less than 1%) in these studies, mainly because the study participants were very young (the average age in all three studies was 41 years or less).

What are the problems then?

More data isn't always better. If your GP checks your pulse at an appointment, finds it irregular and an ECG confirms it is atrial fibrillation, it's likely you are experiencing atrial fibrillation quite a lot of the time (or all the time).

The risks of atrial fibrillation are [similar](#) for people with symptoms and those without, and we know how to treat the condition.

However, wearables are able to monitor people's [heart](#) rhythm far more frequently and for much longer. The more you look, the more atrial fibrillation you find, but we are not yet sure we should.

So, while wearables increase detection of atrial fibrillation, we don't know whether this will also prevent strokes.

Many people who buy wearables are younger and at lower risk. We aren't yet sure about what it means when a young person with few or no [risk factors](#) has short episodes of atrial fibrillation.

More evidence is needed, ideally from good-quality, independent, randomized studies.

Drawbacks and data

Even highly accurate devices can and do [sometimes give false positives](#), more frequently in younger people who have a lower risk of having atrial fibrillation. Additional tests may be needed, which increase cost, and may lead to unnecessary testing that could cause problems and potentially anxiety.

Data privacy is also a concern. There are important legal gaps in relation to [data protection and regulation of apps](#) in many countries.

Consumers often lack [ownership or control of data](#) from health apps.

What should I do if my wearable tells me I have atrial fibrillation?

If your device says you may have atrial fibrillation, save a copy of the reading and talk to your doctor about the result. You may need further testing or treatment. However, don't panic!

We need to remember one size doesn't fit all. Either way, wearables are here to stay. We have to make sure we understand their benefits and limitations.

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