

## Apple Watch may spot heart problem but more research needed

By **Lauran Neergaard**  
AP Medical Writer

WASHINGTON — A huge study suggests the Apple Watch can detect a worrisome irregular heart-beat at least sometimes — but experts say more work is needed to tell if using wearable technology to screen for heart problems really helps.

More than 419,000 Apple Watch users signed up for the unusual study, making it the largest ever to explore screening seemingly healthy people for atrial fibrillation, a condition that if untreated eventually can trigger strokes.

Stanford University researchers reported Saturday that the watch didn't panic flocks of people, warning just half a percent of participants — about 2,100 — that they might have a problem.

But even among those flagged, "it's not perfect," cautioned Dr. Richard Kovacs of the American College of Cardiology, who wasn't involved with the study.

People who received an alert were supposed to consult a study doctor via telemedicine and then wear

an EKG patch measuring cardiac activity for the next week to determine the watch's accuracy. Some skipped the virtual check-up to consult their own doctors; overall, about 57 percent sought medical attention.

Among those who got EKG monitoring through the study, a third had atrial fibrillation, according to preliminary results being presented at an American College of Cardiology conference in New Orleans.

A-fib tends to come and go, and a week of monitoring might have missed some cases, said Stanford lead researcher Dr. Mintu Turakhia. But if the watch detected another irregular heartbeat while someone was wearing the EKG patch, 84 percent of the time it really was a-fib, he said.

"This study we believe provides very encouraging evidence that a device, the Apple Watch, can be used to detect a-fib and to point out to people when additional monitoring or testing may be needed," said Dr. Lloyd Minor, Stanford's dean of medicine.

Other cardiac experts said the study, which was funded by Apple, suggests screening with wearable technology might be technically feasible eventually, but needs lots more research.

"I would not advise this to the overall general population," said Dr. Valentin Fuster, director of Mount Sinai Heart in New York and a former American Heart Association president, who wasn't involved with the study. Instead, he'd like to see it tested in seniors with risk factors like high blood pressure.

### What is atrial fibrillation?

A-fib occurs when the heart's top chambers, called the atria, get out of sync with the bottom chambers' pumping action. Sometimes patients feel a flutter or a racing heart but many times they're not aware of an episode.

Sometimes the heart gets back into rhythm on its own. Other patients get an electric shock to get back into rhythm, or are prescribed blood thinners to counter the stroke-causing blood clots

that untreated a-fib can spur. A-fib causes 130,000 deaths and 750,000 hospitalizations a year in the U.S.

### How do doctors check for it?

A-fib is most common in older adults, and other risks include high blood pressure or a family history of arrhythmias. But routine screening isn't recommended for people without symptoms. Studies haven't yet proved that early detection from screening would prevent enough strokes to outweigh risks from unnecessary testing or overtreatment.

### How does the Apple watch check for it?

A mobile app uses the optical sensor on certain versions of the watch to analyze pulse rate data. If it detects enough variation from beat to beat over a 48-hour period, the user receives a warning of an irregular heart rhythm.

The latest version of the Apple Watch also allows wearers to push a button to take an EKG and share the reading with doctors.



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Daniel Poston, a second-year medical student, in New York, Dec. 15, 2017. Poston signed up for a heart study that is financed by Apple and uses an app on the Apple Watch

Saturday's study didn't include watches with that capability.

### Does the new study show mass screening is a good idea?

No. The study was designed to tell how the watch compared to a week of standard EKG monitoring — not if the wearer's health improved because the screening uncovered the arrhythmia. To prove if detecting a-fib early lowers

risk of stroke would require years of study.

And since the study didn't have a comparison group getting routine EKGs, there's no way to know if the watch missed heartbeat problems, giving a false sense of security, Kovacs said.

The puzzling low numbers of alarms might be because most participants were young or middle-aged, not the seniors who are most at risk for a-fib, he said.

## 'Short sleepers' can get just four hours a night and feel fine. But is their health at risk?

By **Stacey Burling**  
The Philadelphia Inquirer

"Sleep is overrated." So proclaims Stephen Klasko, who throughout his life has taken pride in sleeping only four or five hours a night. Those extra few hours away from his pillow, he believes, have allowed him to write books, run marathons, and achieve his lofty professional goals. An obstetrician and gynecologist, he's the president and CEO of Jefferson Health, one of the region's largest health systems. Under his tenure, it has expanded rapidly to a \$5 billion enterprise with 14 hospitals.

As a doctor, he is aware that inadequate sleep has been associated with a mounting list of cardiovascular, metabolic, mood, immune system and cognitive problems, or, as one researcher put it, "pretty much anything bad." He recently turned 65 and knows that his habits might catch up with him. But he thinks he's passing the most important health test: He feels fine.

"I'm not worried," he said. Should he be? Millions of Americans, including President Donald Trump, are in the same boat. They're considered "short sleepers," which means they get six hours or less of shut-eye a night. Experts recommend adults sleep at least seven hours.

"To me, the only thing more important than sleep is air and water," said Ying-Hui Fu, a molecular biologist and geneticist who studies sleep at the University of California-San Francisco. "You cannot live very long without sleep."

So far, most scientific studies have lumped all short sleepers together, but they are not homogeneous, and researchers are increasingly interested in whether all short sleepers share the same risks. Fu studies a rare and exceedingly lucky group who seem genetically inclined to get — and probably need — less sleep. Many more people — often energetic, extroverted high

achievers — choose to scrimp on rest and say they feel OK, but probably aren't. Others are pushing themselves and know they feel bad.

Then there are insomniacs, whose difficulty sleeping is often paired with anxiety and stress. Many of them believe that they need more sleep. People with sleep apnea, who sometimes sleep plenty of hours, may be in a different category altogether because of poor sleep quality.

The new research trend is raising questions that are harder than they first seem, said Michael Grandner, director of the Sleep and Health Research Program at the University of Arizona School of Medicine. How do you know when someone has gotten enough sleep? Enough for what?

It is possible that the amount of sleep individuals need to prevent fatigue or flightiness is different from the amount needed to forestall overeating, diabetes or depression. "Sleep isn't one thing," Grandner said. "It's a whole set of processes." Researchers are trying to develop biomarkers that can objectively measure fatigue and other consequences of inadequate sleep.

There are an "amazing amount of gaps" in our scientific knowledge of sleep, said Paula Williams, a clinical health psychologist who studies sleep at the University of Utah.

In the meantime, many of us are pushing our luck. Kristen Knutson, a biomedical anthropologist at the Center for Circadian and Sleep Medicine at Northwestern University's Feinberg School of Medicine, said about 30 percent of adult Americans

now qualify as short sleepers, compared with about 20 percent in the 1970s. She thinks longer commuting times are likely a factor as well as extra time spent on computers and smartphones, distractions that didn't exist 50 years ago.

"We're in a grand societal experiment where it's common to sleep less now," Williams said.

### The new focus on sleep

People are getting the message that sleeping too little is bad. James Findley, a psychologist who is clinical director of the behavioral sleep medicine program at Penn Medicine, said short sleepers often seek treatment now because they're worried about their health, especially the potential for dementia.

Insomniacs may already be having trouble relaxing because they are worried that they'll be a wreck the next day. Studies about the ill effects of sleep deprivation just give them something else to obsess about. Such devices as Fitbits, which can monitor sleep habits, have spawned a form of sleep perfectionism, which researchers have dubbed orthosomnia, that also can increase anxiety.

Several sleep researchers said they're most worried about really short sleepers, those who get less than four hours, regardless of how this habit makes them feel. Experts also suspect that feeling tired or fuzzy-headed after sleeping four to six hours is a signal that something is wrong. The most perplexing group is people who sleep four to six hours and say they feel good.

Fu has been studying natural short sleepers for about 10 years. She's found mutations on five genes that seem to change our need for sleep. When mice were genetically altered to express three of these mutations, they also slept less and didn't appear to suffer otherwise. The group of about 50 natural short sleepers that Fu has found tends to be energetic, thin and optimistic.

People don't belong in this group, Fu said, if they drink much coffee or tea to stay awake, or need to catch up on sleep on weekends or vacations. Klasko, who has not participated in her research, fits her profile. So does Rosary Giang, an Erie native and University of Pittsburgh grad who now lives in Houston. Her parents forced her and her siblings to spend seven to eight hours in bed each day. She was thrilled that she could sleep only four to five hours after she left home. "It's not like a choice I make," she said. "I just go to bed when I'm tired and I just wake up naturally. ... I don't even need an alarm clock to wake up."

Fu has not studied whether people with the genes are any more or less likely than others to develop health problems or how their short sleep affects life span. Her altered mice seem healthy, but she hasn't studied them throughout their life spans, either. Such research is very expensive.

While this group seems most likely to evade problems from sleep deprivation, Williams cautions against assuming that.

"Just because something occurs naturally," she said, "doesn't mean it's good."



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According to new research, skimping on sleep during the week and catching up on weekends is like eating burgers for five days and kale for two. It's still bad for you.



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