I Wore Six Sleep Trackers for Two Weeks. Here's What I Learned About Getting Better Sleep.

Every night I wore the Oura ring, Whoop strap, Apple Watch, Garmin Vivosmart 4, Fitbit Charge 4, and Muse headband. Yes, all at the same time.

By Allen St. John

December 6, 2021

Photo: Chris Buck

Total sleep: 7 hours, 44 minutes . . . Sleep Performance score: 88 . . . REM Sleep: 2 hours and 1 minute . . .

That's what the smartphone app for my Whoop 3.0 fitness tracker told me about how I slept on my first night of evaluating wearable sleep trackers.

Those positive stats were at odds with what I had scribbled in my handwritten sleep diary only a few moments before: "I woke up feeling like death warmed up."

Welcome to the promising—and sometimes confusing—world of personal sleep tracking.

Since the beginning of the pandemic, my generally solid sleep had become more fitful. And I've read about studies that have linked the long-term effects of poor sleep to an increased risk of dementia, heart disease, diabetes, depression, and more. So I found myself both worried and determined to find a way to get more zzz's.

MORE ON SLEEP AND HEALTH

Best Mattresses of the Year

CR's Fitness Tracker Buying Guide & Ratings

Simple Strategies for Better Sleep

Which Fitbit Fitness Tracker or Smartwatch Is the Right Fit for You?

Does Melatonin Really Help You Sleep?

After trying the easy stuff, such as buying a squishy down pillow I liked at Marshalls, I decided to turn to technology. Since I'm a tech editor at Consumer Reports and self-professed gear geek, I planned a deep dive to find a device that would help me better understand my out-of-whack sleep patterns. And maybe even sleep better.

Wearable sleep trackers are part of a $30 billion sleep improvement industry that includes everything from sound machines to sleep drugs that promise sounder slumbers. That has taken on added momentum as more Americans like me report sleep problems amid the disruption of COVID-19. There's even a term for it: coronasomnia.

Today's consumer-grade trackers are relatively inexpensive, rechargeable devices that may use your movement and other metrics such as your heart rate to log your sleep duration, sleep stages, or the number of times you awaken at night. Most devices then roll that info into a sleep score.

After consulting with five sleep specialists, I settled on six trackers to evaluate, wearing

each of the devices at the same time for 14 consecutive nights:

• **Apple Watch Series 6**

• **Fitbit Charge 4**

• **Garmin Vivosmart 4**

• **Muse S headband**

• **Oura Ring**

• **Whoop 3.0**

From left, the Apple Watch Series 6, Garmin Vivosmart 4, Muse 2 headband, Fitbit Charge 4, Oura Ring, and Whoop 3.0 strap.
Photo: Chris Buck

Editor's Choice: the Oura Ring

After I was done with the two-week-long evaluation, I was pretty happy to take off the devices and get back to sleeping in just my pajamas.

Which led me to a revelation: A couple of days after I was done, I looked down at my fingers and realized I had simply forgotten to take off **the Oura Ring** ($300 and up).

This elegant device was my Editor's Choice, largely because of how easily it slips into the background. It's a gossamer-light band made of titanium that's just a bit bigger than a wedding ring. It's sized like a piece of jewelry, and I found it comfortable enough to be worn 24/7. Its low-key personality makes it a genial everyday companion.

On the data front, the Oura has no display—it doesn't even tell you if it's charged—so I could pretend it was a dumb device. Which meant that I went to Oura's app not when I was prompted by something that caught my attention on a device's screen, but when I had the time and inclination to really absorb the Oura's granular sleep information.

I found the Oura's app robust, and it fed me useful information. It detected, for example, when I had eaten a late-night snack (and suggested I might try eating earlier). The Oura used my sleep trends combined with my heart rate variability (the consistency of the intervals between each heart beat) to suggest that I needed rest more than I needed another hard workout.

In short, I began using Oura as a long-term companion that became part of my everyday routine. It served as a gentle but persistent reminder about the importance of good sleep habits while keeping me from obsessing over them. The result was that I started sleeping like I did before the pandemic.

And my time with the Oura and the other devices taught me a simple but powerful lesson: The best sleep tracker is the one you can ignore.

Since I completed my evaluations this summer, Oura has introduced a new version of its device, the Oura Generation 3. The simple design, which was my device's major benefit, seems quite similar. The Generation 3 ring has additional body temperature and heart rate sensors, and can measure blood oxygen levels. It's available from Oura.

Oura has started a $6 per month online membership program with the Oura 3. The Oura

2 will continue to have access to sleep data and the current features without the need to upgrade for up to two years. We'll take a look at the Oura 3 when it becomes available to see how it stacks up with the model I evaluated.

The six devices were worn all at once every night for two weeks.
Photo: Chris Buck

Five More Trackers in Detail

The Apple Watch Series 6 ($350 and up) felt in many ways like the opposite of the Oura. It's the largest of the wrist-worn devices and sports a big, colorful display. But instead of the granular detail of the Oura and other devices, the Apple Watch serves up weekly trends that present a big-picture view. If having a mountain of sleep data simply makes you worry more about your sleep—as it did for me—the Apple Watch's restrained approach might help you stop fretting.

One drawback: The Apple Watch Series 6 delivers only 18 hours of battery life, according to Apple, which meant that if I wore it overnight, I needed to make time during the day to recharge it. Apple has come out with a Series 7 Watch with a bigger display and claims slightly faster charging (but not longer battery life), but its sleep-tracking functions shouldn't change much. The new model is available at Amazon, Apple, Best Buy, Sam's Club, Target, and Walmart.

The other devices tend to slot between these two extremes. The **Whoop 3.0** (free with a $30 monthly membership) is also minimalist: a nylon wrist strap with a prominent buckle that houses the sensors and rechargeable battery, a simple LED battery-level indicator, and no display. The Whoop itself is a little less elegant than the Oura. I found the band a bit scratchy and uncomfortable overnight (although other bands are available), and I sometimes found it difficult to attach the Whoop to its charger.

Like the Oura, the Whoop strap, which is endorsed by some professional athletes, sees sleep as a recovery parameter in the bigger picture of total performance. It makes concrete—and useful—training suggestions based in part on your sleep patterns. Whoop has recently introduced a Whoop 4.0, which has a slightly smaller strap and additional sensors.

Then there's the question of the Whoop's cost. While the Whoop strap is technically free—you get the device when you sign up for a subscription program—the ongoing fees can add up quickly. Two years of membership at the $30 monthly rate could total $720, although signing up for a longer-term membership can reduce the cost to $18 per month. The new device is available from Whoop.

The Garmin and Fitbit are both full-featured wrist-worn fitness trackers that might otherwise be tossed into a gym bag when they're not on sleep-tracking duty. They offer good value and serve up their sleep data in a straightforward way that can be broken down when you want more granular data.

I found the monochrome screen of the **Fitbit Charge 4** ($130) easy to read, but a detailed review of my sleep data required the use of Fitbit's smartphone app. While the information was quite comprehensive, an even deeper dive into the data requires enrolling in the $10-a-month Fitbit Premium program. But the Fitbit's low price combined with its extensive fitness and sleep-monitoring capabilities earned it a Good Value designation.

The first Charge 4 purchased by CR worked fine at the start but stopped yielding full

sleep data halfway through. After consulting with Fitbit, which suggested that the first device was probably broken, I bought another Charge 4, which worked fine. The newer Charge 5 has a sleeker case and color screen, but Fitbit says its sleep-tracking performance should be similar. It's available at Abt Electronics, Amazon, Best Buy, Fitbit, Lowe's, and Macy's.

I thought the **Garmin Vivosmart 4** ($130) couldn't quite make up its mind. The slim, low-profile device tries to be unobtrusive, like the Whoop and the Oura, but I found its tiny display more distracting than useful. The Garmin smartphone app focuses mainly on total sleep but does provide easy-to-follow graphics about sleep stages, while a chart with seven-day sleep averages helped me spot and analyze my longer-term sleep patterns. The device is available at Amazon, Best Buy, and Walmart.

The headband-mounted **Muse S** ($350) is, in many ways, the most ambitious sleep-monitoring device I evaluated. It measures sleep stages directly using electrical activity, similar to the sophisticated brainwave monitors in sleep labs.

Unfortunately, the execution was lacking. I found the Muse uncomfortable, and it sometimes took a half-hour to get and keep a solid connection. And I often awoke with the device askew. (Muse said that my connection issue was probably caused by a since-rectified production problem. I found that a second Muse S worked somewhat better.) And unlike the other devices I evaluated, the Muse is a sleep-monitoring monotasker—it's not something that you'd wear outside of bed. On the positive side, the meditation and mindfulness scripts on the app might help you relax. The Muse S has been replaced by a slightly modified 2.0 version, available at Muse.

The Process: How I Evaluated the Devices

I first assembled a panel of experts, both clinicians and sleep researchers, to advise me. They were:

• Michael Grandner, director of the Sleep and Health Research Program at the University of Arizona

• Molly Atwood, an assistant professor of psychiatry and behavioral sciences at the Johns Hopkins University School of Medicine

• Kelly Glazer Baron, a clinical psychologist and associate professor of public health at the University of Utah with specialty training in Behavioral Sleep Medicine

• Dimitri Gavriloff, a senior clinical psychologist and Clinical Course Tutor in Sleep Medicine at the Sleep and Circadian Neuroscience Institute, University of Oxford

• Massimiliano de Zambotti, a researcher in the Human Sleep Research program at SRI International

I read the directions and tried each device for at least a few days (and in some cases for up to two weeks) to make sure they were working properly and delivering data to their apps, including information that would allow the devices to understand my sleep patterns over time.

My expert advisers agreed that wearing the devices at the same time would yield the best data. It would allow me to compare my Day 3 sleep duration, for example, across several devices in a way that was as close as possible to an apples-to-apples manner. They added that there would likely be little chance of the devices interfering with each other.

In terms of duration, they agreed that a two-week evaluation would yield a reliable but manageable collection of data.

I also kept a sleep diary, making sure to log my entries *before* I looked at the results from any of the devices. That's because several studies, including one by Gavriloff, suggest a potential placebo effect when it comes to sleep tracking. In Gavriloff's study, test subjects who were considered poor sleepers were fed false data by their wearable devices.

"Those that were told that they slept poorly exhibited worse daytime symptoms relative to those who were told that they slept well," Gavriloff says. "We assume that the feedback from the watches is what was driving the effect."

At the end of my two-week evaluation, I poured my data into a six-page, 16-column spreadsheet. (Consumers will find all the data they need and more on their smartphone apps.)

To avoid a potential placebo effect, the author wrote in a sleep journal before looking at the overnight data from the sleep trackers.
Photo: Chris Buck

Sleep Stages Explained

Wearable sleep trackers are said to follow many of the same metrics as the kind of laboratory sleep study (known as polysomnography) prescribed by a sleep doctor for patients with insomnia or other sleep disorders. Those tests usually involve an overnight visit to a clinic wearing an array of sensors that monitor movement, heart rate, breathing, and brain activity to help determine the underlying causes of a patient's sleep disturbances.

Those clinical tests also use scalp-mounted sensors to track brain activity to log the amount of time spent in different sleep stages. The most familiar stage is REM, or rapid eye movement. That's the stage in which you might dream about oversleeping for your trig midterm. Unnerving though it may be sometimes, dreaming in the REM stage is vital to your mental health.

The other stage that gets a lot of attention is deep sleep, a stage of slumber from which the sleeper is not easily roused. This is when your body is thought to be actively restoring itself and releases important chemicals like human growth hormone, which are linked to physical and mental recovery.

The rest of the night, and indeed most of your time in bed, is generally spent in an in-between stage called light sleep. While light sleep doesn't sound exciting, according to Baron at the University of Utah, it's perfectly normal for adults to spend more than half the night in this stage.

The devices collected an impressive amount of information, but comfort proved to be just as important.
Photo: Chris Buck

Like a Bathroom Scale

"People buy these things thinking they're a weight-loss program," says Grandner of the University of Arizona. "But they are usually more of a bathroom scale."

That sage advice reminded me of the purpose of sleep trackers as I evaluated them.

After the two weeks, I was a bit overwhelmed by the sheer amount of data I had collected. Upon consulting with my experts I came to realize that I needed to spend a little less time fretting about sleep data and a little more time thinking about the devices themselves.

My first revelation was that the devices that were comfortable during the day could be downright annoying at night. As I noted earlier, I found the Whoop 3.0's strap scratchy, while those on the Fitbit Charge 4 and the Apple Watch seemed either too loose or too tight. The narrow band on the baby blue Garmin Vivosmart 4 irritated my skin, and the Muse S headband flat out kept me awake. The Oura ring? I hardly noticed it.

The other big takeaway: Don't get distracted by the data. At first I looked at the previous night's results right after writing in my sleep diary. That led me to gamify my sleep, going to bed earlier in an attempt to juice my scores. Good idea. But the net result was more time spent in bed but not more actual sleep. Unlike so many other things in the world of wellness, sleep doesn't respond to sheer effort.

"No one has ever slept longer or better by trying harder," Grandner, who has consulted with Fitbit, told me, a little too late.

As I got deeper into the process I started obsessing over the discrepancies I saw in the data. Even though I wore the same devices on the same night, the results weren't always the same. On Night 13 of my evaluation, for example, the Fitbit told me that I had logged only 5 hours and 50 minutes. The Garmin, meanwhile, said I snoozed for 7 hours and 36 minutes.

It turns out I was worrying over nothing. The experts explained that sleep science can feel maddeningly inexact to consumers, who have increasingly been bringing sleep-tracker data to their doctors. The algorithms in each device differ a little in how they track the micro-awakenings that litter even a good night's sleep.

And the companies agreed. Fitbit told me that since wrist-based trackers are inferring body movement from the motion or your hands and arms, these kinds of variations are to be expected. Garmin added that differences in how the devices are used—which wrist the device is worn on, how tight the strap is, and whether or not the device is worn throughout the day—can affect the results.

All of which meant that I shouldn't freak out if the stats from one of the wearables said I got only 7 hours of total sleep, or less REM or deep sleep than the night before.

"There's a general notion that you need to get 8 hours of sleep, but it really depends on the person," says Atwood of Johns Hopkins. "Getting less than 6 hours of sleep a night is not great." Week-to-week trends, she says, are what you should watch.

Sleep staging varied even more, but again that variation shouldn't be a cause for alarm. "People ask me about sleep stages, but honestly, I don't care very much about them," Grandner says. He notes that while they're improving, most consumer-grade devices are at their weakest when measuring sleep stages because their algorithms are trying to model brain activity using secondary metrics like movement and heart rate.

More to the point, reasonably healthy sleepers tend to regulate their own sleep stages pretty effectively without any effort. "You can't make yourself get more REM sleep," Gavriloff says.

Better Sleep Tricks

To turn your tracker's insights into sweet dreams, try the following.

KEEP A DIARY

A sleep tracker makes it fun and easy to keep track of how much you slept. But it's also important to know how well you slept. Which is why many sleep doctors suggest that patients also keep a sleep diary. Entries can include when you ate and exercised and how you felt when you woke up. That weird dream with Tom Hanks riding a llama? Totally optional.

WIND DOWN

Sleep trackers often offer settings to remind you to spend time unwinding before bed. To do this, turn off electronics (some apps can even limit your notifications) and begin a ritual that might include a hot bath and a good book. Avoid evening snacks, caffeine, and alcohol, and settle down in a cool, dark, comfortable room.

DIALOGUE WITH YOUR DOCTOR

If you're not sleeping well, don't hesitate to see your doctor and share the data from your tracker. Insomnia can often be remedied without medication or invasive procedures, and the gold standard treatment —cognitive behavioral therapy, which involves building better bedtime habits—can help you in as little as six sessions.

Editor's Note: *A version of this article also appeared in the January 2022 issue of Consumer Reports magazine.*

This product evaluation is part of Consumer Reports' "Outside the Labs" reviews program, which is separate from our laboratory testing and ratings.

Our "Outside the Labs" reviews are performed at home and in other native settings by individuals, including our journalists, with specialized subject matter experience or familiarity and are designed to offer another important perspective for consumers as they shop. While the products or services mentioned in this article may not currently be in CR's ratings, they might eventually be tested in our laboratories and rated according to an objective, scientific protocol.

Like all CR evaluations of products and services, our "Outside the Labs" reviews are

More From Consumer Reports

I believe that technology has the power to change our lives—for better or for worse. That's why I've spent my life reporting and writing about it for outlets of all sorts, from newspapers (such as the Wall Street Journal and the New York Times) to magazines (Popular Mechanics and Rolling Stone) and even my own books ("Newton's Football" and "Clapton's Guitar"). For me, there's no better way to spend a day than talking to a bunch of experts about an important subject and then writing a story that'll help others be smarter and better informed.

Newsletters
Give a Gift

About

About Us
Career Opportunities
Media Room
Advocacy
CR Recommended Program
Data Intelligence
Digital Lab

Product Reviews

Appliances
Babies & Kids
Cars
Electronics
Health
Home & Garden
Money
A-Z Index

Magazine & Books

Current Issue
CR Digital Archive
5 Year Index
CR Store

More

Video
en Español
Report a Safety Problem
Give a Confidential News Tip
Buy a New Car
Buy a Used Car
Sitemap

Donate

Privacy Policy | User Agreement | Ad Choices | Do Not Sell My Personal Information