



HEALTH 2085

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Johnathan is the Education Manager for Biology at SSERC. He helps teachers to try out new ideas for lab experiments with their classes. Before joining SSERC, he was a lecturer in biology and a researcher in philosophy and law - meaning he isn't just interested in the science of how medical devices work but in how they're made, patented and the important ethical questions raised by this bold new approach to health!

60 years ago

Heart rate, blood oxygen levels, sleep quality, and even how many times you stand up in a day: these metrics aren't just numbers; they're biological breadcrumbs that can hint at everything from heart health to chronic stress. In the past, we could only collect this information by using expensive and heavy pieces of equipment in healthcare settings like hospitals, which means we also only collected it for short periods of time! For people with sleep issues, a night in a sleep monitoring clinic (a special room where doctors and nurses monitor your sleep for a night or two) was very rare and very expensive.

Present day

Your body's trying to tell you something—and wearable tech might well be the future of how we listen. Gadgets like the Apple Watch track key health signals, and by collecting this data in real time, wearables help people (and their doctors) catch problems early, build healthier habits, and make informed decisions.

One classic example is heart rate! The underlying science is simple (although very clever). A tiny little diode emits green light, and a small optical sensor detects how much of it is absorbed. Blood absorbs green light, so with each heartbeat, as blood pulses through your wrist, the sensor can calculate how many times your heart beats per minute.

Another example is sleep monitoring. Sleep isn't just downtime—it's your body's chance to patch itself up and get ready for the next day. Disruptions to this cycle can affect everything from immune strength to blood sugar regulation; chronic poor sleep is linked to heart disease, depression, obesity, and even Alzheimer's. Wearable tech can help here too- many of us are gathering similar data to a sleep monitoring clinic each night simply by keeping our watch on!

The next generation

Wearable technology is transforming how we track and understand our health. Sometimes innovation is about discovering bold new science and developing something new from scratch, but often it looks more like taking what already exists and making it easier to work with and cheaper to buy. Devices like smartwatches and fitness trackers are putting valuable health data in the hands of millions of us: we'll spot our own health issues earlier and as we begin to establish an enormous pool of data about the heart, brain and sleep health of wearable tech users, we'll likely speed up research into several key conditions.

Having access to our own biomedical data is going to empower lots of people to lead healthier, longer lives in the future!

