

This portable ultrasound device can monitor each organ in the body with high accuracy

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If you are a tech-savvy person, interested in applying technology to physical activity and health monitoring, chances are you already own at least one smart watch. These compact wearables contain a powerful sensor system that can track a variety of biochemical indicators and your physical activity in real time.

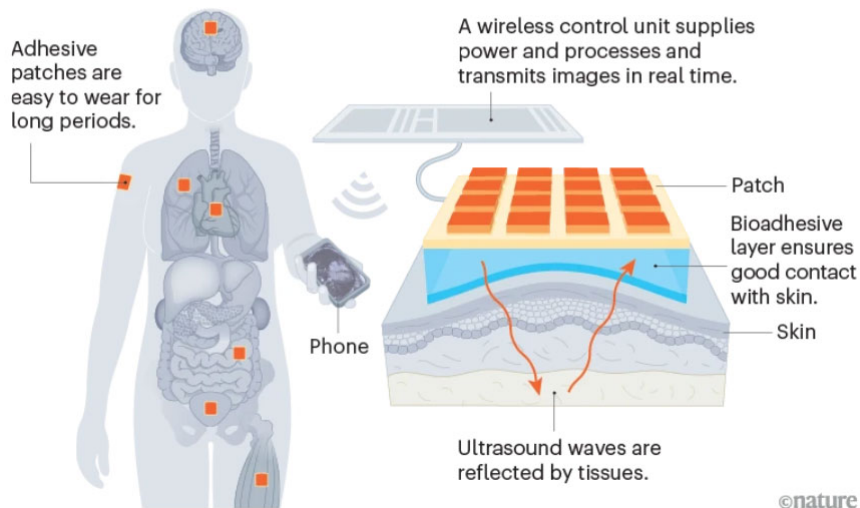
However, smartwatches or similar products are currently limited in the sensor's ability to penetrate just a few millimeters into human skin to collect information. Meanwhile, a recently launched wearable device may bring a breakthrough in the ability to monitor the activities of organs inside the body through ultrasound waves, and is expected to have great potential. become the future of the personal healthcare device industry.

A team of researchers led by professors C. Wang and X. Zhao has successfully developed a new ultrasound wearable device that is only "a few centimeters" long, and can be attached to the skin via bioadhesives. and conveniently connects to a pocket-sized battery and data transmission system. Although still in its infancy, the device is said to be able to provide continuous, high-quality images of tissues deep within the human body. The device's battery life currently allows intermittent recording of minute-long videos, multiple times per hour over several days.

This system wirelessly transmits clinical-grade data to a tablet or smartphone. The team is not yet conducting clinical trials but hopes to reach that stage in the next few years.

WEARABLE ULTRASOUND IMAGING

Electronic patches stuck on the skin send acoustic waves into the body to continually monitor the heart, muscles, blood flow and breathing. Once technical challenges are overcome, such devices could be used to monitor people's health at home.



Of course, unlike the harmful ionizing radiation produced by X-Ray equipment, ultrasound waves are relatively non-invasive and quite safe. Therefore, the research team's priority is to apply only ultrasound waves. C. Wang and international.

Highlighting clinical use cases, the team notes that the device could enable "continuous monitoring of high-risk patients, monitoring of fetal health in high-risk pregnancies, or monitor the recovery process after surgery".

The device could bring diagnostic and monitoring capabilities to remote areas, making medical imaging more accessible and affordable in low- and middle-income countries. As technology improves, we foresee its potential to be applied to the daily lives of individuals to manage chronic conditions such as hypertension or for early detection of heart failure and aneurysms. abdominal cavity and deep vein thrombosis.

Wearable ultrasound devices like these patches still face many challenges before they can be commercially launched. But they represent scientists' vision of the future of personal health monitoring.

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