

## Wrist Device Provides Reliable Blood Pressure Values

By Kathy Adamson

New research shows that XYZ, a wearable wrist device, collects blood pressure (BP) measurements that are as reliable and accurate as manual blood pressure values.

We “have developed a totally mobile, radial artery-based BP estimation using a wearable cuff-less wristwatch and validated its accuracy in comparison with a manual sphygmomanometer,” said study author and associate professor of medicine at the ABC School of Medicine, Dr. John Doe.

The researchers compared manual systolic blood pressure (SBP) and diastolic blood pressure measurements (DPB) to blood pressure measurements taken with the XYZ wrist device and found that the blood pressure measurements were similar.

- For SBP, 71.4% of XYZ wrist device values were within 5mmHG of manual SBP and 86.7% were within 10 mmHg of manual BP.
- For DBP, 83.8% of XYZ wrist device values were within 5 mmHg of manual DBP and 99.0% were within 10 mmHg of manual BP.

The XYZ wrist device measures blood pressure without a cuff. Using LED lights, it detects volume changes in skin capillaries through a small interface. A calibrated neural network processes the data and reports the BP readings. XYZ pairs with a mobile application so users can see their health information on a smartphone.

Unlike traditional blood pressure measuring tools that require a rubber cuff and other components, the XYZ is light (31.2g), small (38.0 mm diameter and 11.6 mm thick), and sits comfortably on the wearer's wrist. Users can quickly take BP readings anywhere, anytime. XYZ also tracks steps taken, heart rate, and sleep parameters.

According to the American College of Cardiology, 46% of adults in the United States have hypertension and accurate BP measurements, including ambulatory blood pressure measurements, are part of proper diagnosis and management.<sup>1</sup> “Hypertension is possibly the most powerful, modifiable risk factor for the development of heart failure,” said Katherine E. DiPalo, Pharm.D. and assistant professor of medicine at the Albert Einstein College of Medicine.<sup>2</sup>

The XYZ “will yield clinical benefits such as reduction in cardiovascular morbidity and mortality,” the researchers said, adding, “given the high accuracy and correlations, the wearable device has shown the potential to become an option for ambulatory blood pressure monitoring in a real-world setting.”

The authors noted study limitations including that wrist BP measurements aren't as accurate as those taken on the forearm and that device accuracy should be tested in multiple real-life scenarios.

1. Muntner P, Shimbo D, Carey RM, et al. Measurement of Blood Pressure in Humans: A Scientific Statement From the American Heart Association. *Hypertension*. 2019;73(5). doi:10.1161/HYP.0000000000000087
2. Di Palo KE, Barone NJ. Hypertension and Heart Failure. *Cardiology Clinics*. 2022;40(2):237-244. doi:10.1016/j.ccl.2021.12.011