

## Scientists develop new app for monitoring heart health

07 September 2017 | News

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In a proof-of-concept clinical trial, engineers at Caltech, Huntington Medical Research Institute have demonstrated that the camera on your smartphone can noninvasively provide detailed information about your heart's health.

The team developed a technique that can infer the left ventricular ejection fraction (LVEF) of the heart by measuring the amount that the carotid artery displaces the skin of the neck as blood pumps through it. LVEF represents the amount of blood in the heart that is pumped out with each beat.

To measure LVEF using the technique developed at Caltech, doctors simply held iPhones against the volunteers' necks for one to two minutes.

The app works because the walls of arteries are almost completely elastic, they expand and contract with each beat of the heart. That expanding and contracting can be measured and described as a waveform that encodes information about the heart.

The team is now exploring what other information about the heart can be mined from the waveform captured by the app. Soon, the researchers anticipate that the technique could be used to diagnose heart valve diseases, like aortic stenosis, and coronary artery blockages.