

## New heart scan may speed up diagnosis with less radiation

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New technology appears to provide faster, more accurate heart scans for both viewing blood vessels in the heart and measuring blood supply to the heart muscle, while exposing patients to less radiation, researchers report in *Circulation: Cardiovascular Imaging*, a journal of the American Heart Association.

In preliminary tests from a small trial of 39 patients, computerized tomography (CT) scans called 2nd generation 128 Slice Dual Source "Flash" CT captured quicker images of the entire heart, allowing doctors to better see artery blockages and reduced blood flow through the heart. This was accomplished using a tenth of the radiation of current CT scans, the standard test for diagnosing and pinpointing the location of [heart disease](#).

The [CT scan](#) uses a high-pitch "Flash" CT scan technique, which enables an ultrafast scan time.

A contrast agent and vasodilator is injected into the patient's blood vessels to help highlight certain areas.

"The new exam is faster and more convenient for the patient," said Gudrun M. Feuchtner, M.D., a study co-author.

The new technology captures images of the entire heart in less than 0.3 seconds – within one heart beat — as compared to 6 seconds and several heart beats for conventional CT scans.

For accuracy, the new scan was compared to cardiac magnetic resonance imaging (MRI), and invasive angiogram, which involves snaking a catheter through an artery in the groin or arm to the heart. An angiogram, and sometimes MRI, requires contrast dye.

Compared to cardiac MRI, 78 percent to 95 percent of the time the new CT correctly identified restricted blood flow and correctly ruled it out 84 percent to 94 percent of the time.

Compared to invasive angiography, the new CT had 90 percent accuracy in detecting significant [blockages](#). The new CT's accuracy improved to 95 percent when added to CT perfusion — a scan taken after using contrast dye.

The scan proved particularly useful in patients with advanced heart disease or diabetic patients who reported no symptoms, but were found to have areas of poor coronary blood flow, Feuchtner said. Because people with diabetes may have nerve damage, they may not always experience the chest pains that typically accompany reduced blood flow to the heart.

"Those patients would not immediately seek a cardiologist, but would have a poor prognosis," said Feuchtner, a professor in the Department of Radiology at the Innsbruck Medical University in Innsbruck, Austria.

The study findings can also help to plan heart surgery more accurately, according to André Plass, a co-author and cardiac surgeon from University Hospital Zurich in Switzerland.

The new technology answers two questions with one scan: whether the [blood vessels](#) of the heart are narrowed and whether there is reduced blood flow.

"This can have important implications for cost savings and efficiency as two studies are done in one setting," said Ricardo C. Cury, M.D., co-author of the study and chairman of radiology at Baptist Health of South Florida.

Larger studies are needed before the new technology is widely used, researchers said.

Provided by American Heart Association

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