

What is Cardiac CT for Calcium Scoring?

A cardiac CT scan for coronary calcium is a non-invasive way of obtaining information about the presence, location and extent of calcified plaque in the coronary arteries—the vessels that supply oxygen-containing blood to the heart muscle. Calcified plaque results when there is a build-up of fat and other substances under the inner layer of the artery. This material can calcify which signals the presence of atherosclerosis, a disease of the vessel wall, also called coronary artery disease (CAD). People with this disease have an increased risk for heart attacks. In addition, over time, progression of plaque buildup (CAD) can narrow the arteries or even close off blood flow to the heart. The result may be chest pain, sometimes called "angina," or a heart attack.

Because calcium is a marker of CAD, the amount of calcium detected on a cardiac CT scan is a helpful prognostic tool. The findings on cardiac CT are expressed as a calcium score. Another name for this test is coronary artery calcium scoring.

How should I prepare?

No special preparation is necessary in advance of a Calcium Score CT examination. You should continue to take your usual medications (except for medications for erectile dysfunction), **but should avoid caffeine and smoking for 4 hours prior to the exam. Drink plenty of water prior to your test, but avoid eating any food for 4 hours prior to your exam.**

You should wear comfortable, loose-fitting clothing to your exam. You may be given a gown to wear during the procedure.

Metal objects, including jewelry, eyeglasses, dentures and hairpins, may affect the CT images and should be left at home or removed prior to your exam. You may also be asked to remove hearing aids and removable dental work. Women will be asked to remove bras containing metal underwire. You may be asked to remove any piercings, if possible.

Women should always inform their physician and the CT technologist if there is any possibility that they may be pregnant.

How is the procedure performed?

The technologist begins by positioning you on the CT examination table, usually lying flat on your back. Straps and pillows may be used to help you maintain the correct position and to help you remain still during the exam. Electrodes (small, sticky discs) will be attached to your chest and to an electrocardiograph (ECG) machine that records the electrical activity of the heart. This makes it possible to record CT scans when the heart is not actively contracting.

Next, the table will move quickly through the scanner to determine the correct starting position for the scans. Then, the table will move slowly through the machine as the actual CT scanning is performed. Depending on the type of CT scan, the machine may make several passes.

Patients are asked to hold their breath for a period of 10 to 20 seconds while images are recorded.

When the examination is completed, you will be asked to wait until the technologist verifies that the images are of high enough quality for accurate interpretation.

The entire procedure including the actual CT scanning is usually completed within 10 minutes.

Who interprets the results and how do I get them?

A radiologist with expertise in supervising and interpreting radiology examinations will analyze the images and send an official report to your primary care physician or physician who referred you for the exam, who will discuss the results with you.

A negative cardiac CT scan for calcium scoring shows no calcification within the coronary arteries. This suggests that CAD is absent or so minimal it cannot be seen by this technique. The chance of having a heart attack over the next two to five years is very low under these circumstances.

A positive test means that CAD is present, regardless of whether or not the patient is experiencing any symptoms. The amount of calcification—expressed as the calcium score—may help to predict the likelihood of a myocardial infarction (heart attack) in the coming years and helps your medical doctor or cardiologist decide whether the patient may need to take preventive medicine or undertake other measures such as diet and exercise to lower the risk for heart attack.

The extent of CAD is graded according to your calcium score:

Calcium Score	Presence of CAD
0	No evidence of CAD
1-10	Minimal evidence of CAD
11-100	Mild evidence of CAD
101-400	Moderate evidence of CAD
Over 400	Extensive evidence of CAD

Follow-up examinations may be necessary, and your doctor will explain the exact reason why another exam is requested. Sometimes a follow-up exam is done because a potential abnormality needs further evaluation with additional views or a special imaging technique. A follow-up examination may also be necessary so that any change in a known abnormality can be monitored over time. Follow-up examinations are sometimes the best way to see if treatment is working or if a finding is stable or changed over time.