

Calcium-Score Screening: The Underutilized Cardiac Scan

Calcium: beneficial and baneful

Calcium is a vital mineral found mostly in bones and teeth. Not only does calcium provide a strong framework for muscles and organs, but it is also important for neurological functioning.

However, calcium benefits the body when it stays in its lane.

Calcium in the coronary arteries can be indicative of plaque. When plaque's waxy substance hardens in the vessels, it narrows the arteries causing dangerous effects on blood flow, oxygenation and nutrient supply. This **narrowing of the arteries causes atherosclerosis, which increases patients' risk for a heart attack or stroke.**

Calcium-score screening explained

The **calcium-score screening**, also known as the coronary calcium scan, is a **low-dose CT scan that measures the amount of calcium in the walls of the coronary arteries.** With computed tomography, providers can view detailed 3D imaging that aids in patient interventions.

Using the Agatston score, physicians evaluate their patient's risk of developing atherosclerosis, regardless of whether the patient is experiencing symptoms. This **contrast-free test takes about 10 – 15 minutes.** As seen in the grading scale below, **the higher the number on the Agatston scale, the more at risk the patient is for developing CAD.**

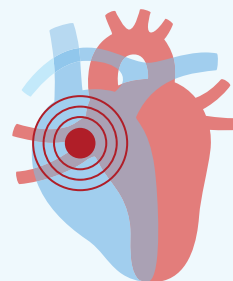
- 0 = None
- 1-10 = Minimal
- 11-100 = Mild
- 101-400 = Moderate
- Over 400 = Extensive

Key Takeaways

- Calcified plaque within the coronary arteries can restrict or even block blood flow, oxygen supply and nutrient provisions.
- With the coronary calcium scan, known to patients as the heart scan, calcification can be detected prior to the development of symptoms.
- The Agatston score aids in the classification of calcification. Knowing the extent of calcified plaque helps clinicians in early detection and prompt intervention.
- Providing patients with substantiated evidence is effective in promoting health, inspiring change and acknowledging reality.

A grade of zero on the Agatston scale is normal and shows that no calcium is detected in the heart. No risk of developing CAD is currently seen with this score. However, with **moderate amounts** of calcium found, the patient is at **risk for a stroke or heart attack within approximately five years.** Extensive calcium indicates that the patient is at significant risk for a heart attack or stroke.

Learn your patient's
heart risk
with calcium-score
screening.



Benefits of calcium scanning

The calcium-score screening is **convenient, noninvasive, pain-free and expeditious**. These benefits are much appreciated by patients. The low cost and multiple detailed images give clinicians a go-to tool for cardiac assessment. Patients are confident that they will receive prompt, safe guidance. Physicians can be self-assured that they are providing the most thorough care without subjecting their patients to high levels of radiation or unnecessarily extensive testing.

Limitation of calcium scanning

Though the benefits of using the calcium scan are apparent, this test does have some limitations. Patients who are **severely obese may not fit within the CT tube**. The weight limit for this test is approximately 450 lbs. Secondly, some patients, especially **those under 50 years of age**, have non-calcified plaque. Therefore, **CAD may not be detected**. As with any test, some patients may experience feelings of anxiety. If the patient's heart rate is elevated, test results may not be accurate due to interference. Lastly, not all health insurance companies cover the cost of a calcium scan.

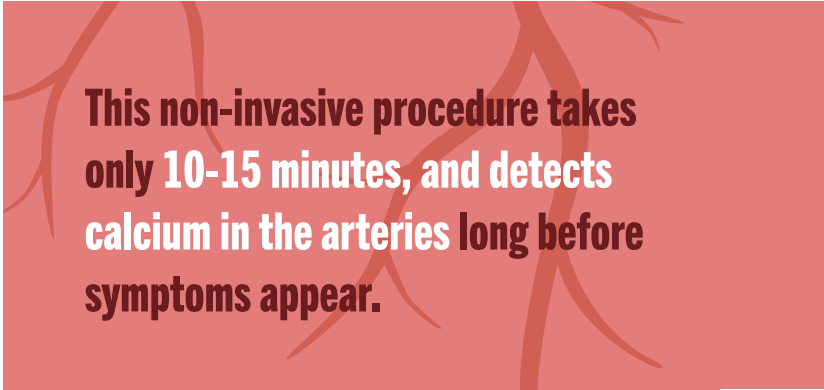
Who should get a calcium-score screening?

Calcium screening is **recommended for patients ages 40-70** who present with cardiac risk factors. The goal of this prognostic tool is to determine if the patient has atherosclerosis and to what extent CAD is affecting the vessels. **Clinical symptoms are not required for prescribing this test, but rather risk factors determine the need.**

- Elevated blood cholesterol levels
- Family history of high cholesterol (familial hypercholesterolemia), even if patient is under 40 years of age with no symptoms of CAD
- Family history of heart attacks
- Diabetes
- Elevated blood pressure
- History of smoking
- Overweight or obesity
- Sedentary lifestyle

Who should not get a calcium-score screening?

Since the calcium scan is primarily to detect calcification of the arteries, it is not necessary to have this screen done for **those that already have a CAD diagnosis or symptoms indicative of CAD**. Coronary calcium scan is primarily used for people with risk factors of CAD that are not currently showing any signs of vessel restriction. Other types of testing to help monitor atherosclerosis would be a better use of time and money for patients with a prior diagnosis of CAD.



This non-invasive procedure takes only 10-15 minutes, and detects calcium in the arteries long before symptoms appear.

Patient and provider collaboration

The calcium scan gathers detailed information for patient and provider. However, knowing how to proceed is often the challenge. In general, people resist change. Patients who do not sense the negative impact of calcifying vessels may exhibit complacency regarding diet or lifestyle changes.

This test gives providers a way to collaborate with patients using substantiated evidence. Depending on the results, physicians will want to discuss one or more of the following interventions.

- No change currently needed
- Change medication or dosage
- Employ diet modifications
- Implement a patient agreed-upon exercise routine
- Establish weight-loss goals
- Prescribe additional testing

Conclusion

Though calcium scans are presently patient-paid, it is clear to see that the benefits outweigh the financial burden. **Our hospital is an advocate for early detection of coronary artery disease and the life-threatening incidences associated with calcifying vessels.** Being established as a chest pain accredited institute authenticates our hospital as a knowledgeable and trusted healthcare system.



Physician Outreach and Connections

Our growth and outreach liaisons provide support and information to referring physicians and other healthcare providers. 928.764.8432

Refer a patient:

Call: 928.302.5000

Fax: 928.505.5778

Resources

"Heart Tests." National Heart, Lung, and Blood Institute, 2022, Heart Tests – Heart Tests | NHLBI, NIH.

"Calcium-Score Screening Heart Scan." Cleveland Clinic, 2021, Calcium Score Screening: What It Is, Who Should Get It, Results (clevelandclinic.org).

"Heart scan (coronary calcium scan)." Mayo Clinic, 2021, Heart scan (coronary calcium scan) – Mayo Clinic.

"Cardiac CT for Calcium Scoring." RadiologyInfo.org For Patients, 2022, Cardiac CT for Calcium Scoring (radiologyinfo.org).