

# Coronary artery calcium scoring

Your doctor has recommended you undergo a test called coronary artery calcium scoring (CAC).

We understand you might not have heard this medical term before now and may be feeling unsure about the nature of the test.

This information sheet will outline what the test is and what preparations and risks are involved.

After you read this information sheet, you might still have questions. If you do, please contact the team at Heart HQ. We're here to help.

## 1. What's CAC?

The CAC is a measurement of the amount of calcium in the walls of the arteries that supply your heart muscle, using a special computed tomography (CT) scan of your heart.

**It's the best predictor of your chance of a heart attack over the next ten years.**

As you age, plaque can build up inside your arteries. This is often called hardening of the arteries (the medical term is atherosclerosis). Unfortunately, the plaque itself cannot be seen on most external x-ray tests. However, over time, calcium is deposited into this plaque and is visible on a CT scan.

Calcium is reported using a measure called Agatston units and gives doctors a guide as to how much plaque is present. This calcium score doesn't measure specific narrowing of the arteries like an angiogram does.

Instead, the calcium score looks at the overall cardiac plaque present which can help predict your risk of a cardiovascular event, like a heart attack or stroke, in the future.

Calcium scores vary with age. The older you are the more likely you are to have some plaque and therefore calcium in your arteries. The calcium score report may give an indication of how you compare to the average person of your age, gender and ethnic race. This is calculated using the MESA calculator ([mesa-nhlbi.org](http://mesa-nhlbi.org)). Alternatively, it may be reported as your estimated arterial age. For example, if you are a 50 year old man with a high calcium score you may be reported as having the arterial age of an 80 year old.

Your Heart HQ cardiologist will discuss the calcium score with you to decide whether you are at low, normal or high risk of a future heart attack and give you guidance on how to reduce your risk. This may be by changing your diet and exercise, controlling blood pressure and diabetes, or stopping smoking and reducing cholesterol. There are various written and educational resources at Heart HQ with information about these factors.

The CAC test is used for screening rather than urgent diagnosis. Screening involves tests on a healthy person without any signs or symptoms of illness. Screening tests give information about whether a healthy person may have an underlying or undiagnosed medical condition or risk or an increase in the chance of developing a potentially serious illness. The CAC is not the best test for you if you already have symptoms like pain or breathlessness, in which case your doctor will likely recommend a more detailed/specific diagnostic test like a CT coronary angiography.

## 3. Benefits of CAC

The CAC allows us to understand the relative risks of a heart attack or stroke to you specifically. This gives us the opportunity to work together to minimise the chance of you having a cardiovascular event in the future. We can also use the information to decide which strategies you should adopt to reduce your risk if it's found to be high.

Your CAC can be repeated after a few years. This will allow your doctor to compare the results and advise you accordingly.

## World-class cardiac care

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Coronary calcium scores are most informative in women between 35 and 70 years and men between 40 and 70 years in terms of providing information about cardiovascular risk, or the risk of a heart attack or stroke. Men over 80 years almost all have high calcium scores and therefore such a scan would not provide any useful information.

The CAC score is of no benefit to someone who has already had a heart attack, coronary bypass surgery or a coronary artery stent. These events indicate that you already have coronary artery plaque. The score does not change enough to be meaningful after treatment for atherosclerosis, which is hardening and narrowing of the arteries, so it does not tell you whether your treatment is working or not.

### 3. Preparation

You do not need to do anything to prepare for a CAC.

### 4. What happens during coronary artery calcium scoring?

Once you have checked in at Heart HQ reception, the radiographer will show you to a dressing room to change into a gown.

You will be taken into the scanning room. The scanner has a round opening in the x-ray machine through which a table moves. The CT scanner looks like a big doughnut. You will lie on this table which will move through the scanner to take pictures of the whole of your heart.

Four sticky electrode patches will be put onto your chest to read the electric pulses of your heart (like ECG tracing). The scanner will use a recording of these pulses to process images. You will be asked to hold your breath as the scans are taken. This ensures a clear picture is captured.

The scan will take just 5–10 seconds and once the scan is successful you may leave. You can expect to be at Heart HQ for approximately 20–40 minutes in total.

### 5. Are there any after effects for CAC?

There are no after effects. You will be able to carry on with your normal day immediately after the scan.

Rarely, skin irritation from the sticky electrode patches on your chest can occur.

### 6. Risks of calcium scoring

As with all x-ray scans, radiation is used. The radiation dose from CAC scoring is very small, about one tenth of a diagnostic CT scan. You should not have this scan if you are pregnant or trying to get pregnant. If you have concerns, please do not hesitate to discuss this with your doctor.

### 7. Results

The time it takes your doctor to receive a written report on the test will vary, depending on:

- the urgency with which the result is needed
- the complexity of the examination
- how the report is conveyed from the practice or hospital to your doctor (usually electronically).

Most results are available within 24 hours and will be sent directly to your doctor who will discuss them with you at your next appointment or over the phone.

It is important that you have this discussion with your doctor so please have a follow-up plan in place.

#### Our commitment to you

As a patient of Heart HQ, you can be assured we will always strive to act in your best interests and we will only recommend tests and procedures we believe will benefit you.

Everyone has questions, and we want to answer yours. Please contact your doctor to discuss any concerns you might have.

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