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Heart CT scan

A computed tomography (CT) scan of the heart is an imaging method that uses x-rays to create detailed pictures of the heart and its blood vessels.

- This test is called a coronary calcium scan when it is done to see if you have a buildup of calcium in your heart arteries.
- It is called CT angiography if it is done to look at the arteries that bring blood to your heart. This test evaluates if there is narrowing or a blockage in those arteries.
- The test is sometimes done in combination with scans of the aorta or pulmonary arteries to look for problems with those structures.

How the Test is Performed

You will be asked to lie on a narrow table that slides into the center of the CT scanner.

- You will lie on your back with your head and feet outside the scanner on either end.
- Small patches, called electrodes are put on your chest and connected to a machine that records your heart's electrical activity. You may be given medicine to slow your heart rate.
- Once you are inside the scanner, the machine's x-ray beam rotates around you.

A computer creates separate images of the body area, called slices.

- These images can be stored, viewed on a monitor, or printed on film.
- 3D (three-dimensional) models of the heart can be created.

You must be still during the exam because movement causes blurred images. You may be told to hold your breath for short periods of time.

The entire scan should only take about 10 minutes.

During a computerized tomography (CT) scan, a thin x-ray beam rotates around an area of the body, generating a 3-D image of the internal structures



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How to Prepare for the Test

Certain exams require a special dye, called contrast, to be delivered into the body before the test starts. Contrast helps certain areas show up better on the x-rays.

- Contrast can be given through a vein (IV) in your hand or forearm. If contrast is used, you may also be asked not to eat or drink anything for 4 to 6 hours before the test.

Before receiving the contrast:

- Let your health care provider know if you have ever had a reaction to contrast or any medicines. You may need to take medicines before the test in order to safely receive this substance.
- Tell your provider about all your medicines, because you may be asked to hold some, such as the diabetes medicine metformin (Glucophage), prior to the test.
- Let your provider know if you have kidney problems. The contrast material can cause kidney function to worsen.

If you weigh more than 300 pounds (136 kilograms), find out if the CT machine has a weight limit. Too much weight can cause damage to the scanner's working parts.

You will be asked to remove jewelry and wear a hospital gown during the study.

How the Test will Feel

Some people may have discomfort from lying on the hard table.

Contrast given through an IV may cause a:

- Slight burning sensation
- Metallic taste in the mouth
- Warm flushing of the body

These sensations are normal and usually go away within a few seconds.

Why the Test is Performed

CT rapidly creates detailed pictures of the heart and its arteries. The test may diagnose or detect:

- Plaque buildup in the coronary arteries to determine your risk for heart disease
- Congenital heart disease (heart problems that are present at birth)
- Problems with the heart valves
- Blockage of the arteries that supply the heart
- Tumors or masses of the heart
- Pumping function of the heart

Normal Results

Results are considered normal if the heart and arteries being examined are normal in appearance.

Your "calcium score" is based on the amount of calcium (plaque) found in the arteries of your heart.

- The test is normal (negative) if your calcium score is 0. This means the chance of having a heart attack over the next several years is very low.
- If the calcium score is very low, you are unlikely to have coronary artery disease.

What Abnormal Results Mean

Abnormal results may be due to:

- Aneurysm
- Congenital heart disease
- Coronary artery disease
- Heart valve problems
- Inflammation of the covering around the heart (pericarditis)
- Narrowing of one or more coronary arteries (coronary artery stenosis)
- Tumors or other masses of the heart or surrounding areas

Calcium scores above 0 indicate the presence of plaque in your arteries:

- 1 to 9 - minimal
- 10 to 99 - mild
- 100 to 299 - moderate
- 300 to 999 - severe
- 1000 or above - extreme

If your calcium score is high:

- It means you have calcium buildup in the walls of your coronary arteries. This is usually a sign of atherosclerosis, or hardening of the arteries.
- The higher your score, the more severe this problem may be.
- Talk to your provider about lifestyle or other changes you can make to decrease the risk for heart disease.

Risks

Risks for CT scans include:

- Being exposed to radiation
- Allergic reaction to contrast dye

CT scans do expose you to more radiation than regular x-rays. Having many x-rays or CT scans over time may increase your risk for cancer. However, the risk from any one scan is small. You and your provider should weigh this risk against the benefits of getting a correct diagnosis for a medical problem.

Some people have allergies to contrast dye. Let your provider know if you have ever had an allergic reaction to injected contrast dye.

- The most common type of contrast given into a vein contains iodine. If a person with an iodine allergy is given this type of contrast, nausea or vomiting, sneezing, itching, or hives may occur.
- If you absolutely must be given such contrast, you may need to take steroids (such as prednisone) or antihistamines (such as diphenhydramine) before the test. You may also need to take a histamine blocker (such as ranitidine).
- The kidneys help remove iodine out of the body. Those with kidney disease or diabetes may need to receive extra fluids after the test to help flush the iodine out of the body.

Rarely, the dye may cause a life-threatening allergic response called anaphylaxis. If you have any trouble breathing during the test, you should notify the scanner operator immediately. Scanners come with an intercom and speakers, so the operator can hear you at all times.

Alternative Names

CAT scan - heart; Computed axial tomography scan - heart; Computed tomography scan - heart; Calcium scoring; Multi-detector CT scan - heart; Electron beam computed tomography - heart; Agatston score; Coronary calcium scan

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