DAMIANRASCH.COM

DAMIAN RASCH, D.O.

ENCINITAS · LA JOLLA, CALIFORNIA



Nuclear Stress Test

How the test maps blood flow to your heart muscle, what happens on test day and what your result means for future risk.

85%
of maximum predicted heart rate (220 minus age) is the usual target

1–2 min
is how long the flushing or breathless feeling from Lexiscan usually lasts

9–12 mSv
of radiation, roughly the same as one chest CT scan

WHAT THE TEST SEES

A map of blood flow to your heart muscle



Heart muscle soaks up a radioactive tracer in proportion to its blood flow, and a special camera maps it. A **fixed defect** usually means scar from an old heart attack. A **reversible defect** points to a narrowing that limits flow when your heart works hard. It can't predict where a future heart attack starts, since many begin at plaques that don't limit flow.

WHAT HAPPENS ON TEST DAY

Pictures at rest and under stress

Getting ready
No food for about 4 hours. No caffeine for 12 to 24 hours before Lexiscan. Keep your heart medicines unless your lab says otherwise.

On the treadmill
Speed and incline step up every three minutes from an easy 1.7 mph uphill walk. Most people aim for 85% of their maximum predicted heart rate.

Or Lexiscan
If you can't exercise, this medicine (regadenoson) opens the heart arteries wide. Flushing, warmth, chest pressure or breathlessness usually pass in 1 to 2 minutes.

Under the camera
You lie on a table while the camera rotates around you. Your EKG, blood pressure and any symptoms during stress all go into the reading.

A badly narrowed artery can still deliver enough blood at rest, so the test makes your heart work harder.

The whole picture

Your images are read together with your exercise time, heart rate, blood pressure, EKG, symptoms and your odds of having blockages before the test. The result sorts you into a risk group that guides what comes next.

READING YOUR RESULT

What it says about your future risk

<1% a year	1–3% a year	>3% a year
Low risk	**Intermediate risk**	**High risk**
Normal images, good exercise capacity, no symptoms and a normal blood pressure response.	Small dim areas on the images, moderate exercise capacity and mild symptoms during exercise.	Large or several dim areas, poor exercise capacity, major symptoms or an abnormal blood pressure response.

These are yearly chances of a heart attack. Low-risk patients can often be managed with medication and lifestyle changes. High-risk patients may need a cardiac catheterization and possibly angioplasty or bypass surgery.

HOW ACCURATE IT IS

Catches most blockages	It correctly flags about 85 to 90% of people who have blockages. The ones it misses are false negatives.
Clears most people without them	It correctly clears about 80 to 85% of people without blockages. The rest get a false alarm, called a false positive.
All three arteries narrowed	When all three major heart arteries are severely narrowed to a similar degree, the images can look falsely normal, since the test works by comparing one area with another. Short exercise time, a drop in blood pressure, symptoms and EKG changes help catch it.

RISKS OF THE TEST

Radiation	About 9 to 12 millisieverts, similar to one chest CT scan. That small amount doesn't meaningfully raise your cancer risk.
Exercise	A heart attack during exercise stress happens in about 1 in 2,500 tests. Emergency equipment and trained staff are right there.
Lexiscan	Serious reactions happen in fewer than 1 in 10,000 tests. An antidote, aminophylline, is kept on hand and is rarely needed.

WHAT IT CAN'T SHOW

Exact location and severity	That takes a cardiac catheterization.
Unstable plaque	Plaque that doesn't block much flow yet can still rupture and cause a heart attack, and the test can't tell whether it's there.
Rhythm problems	It can't predict the risk of sudden cardiac death from a heart rhythm problem.
Small arteries	Only the major coronary arteries can be seen.

YOUR ODDS BEFORE THE TEST

An abnormal result means different things for different people. A 65-year-old man with diabetes, high cholesterol and typical chest pain starts near a 70% chance of blockages, and an abnormal test raises it to about 95%. For a 30-year-old woman with no risk factors and atypical symptoms, it may go from 5% to only 30 to 40%.

READ THE FULL ARTICLE

damianrasch.com/
nuclear-stress-test

For education only, and not a substitute for advice from your own physician. Adapted from the full article by Dr. Damian Rasch, D.O., at damianrasch.com.

DR. DAMIAN RASCH, D.O. · BOARD-CERTIFIED INVASIVE CARDIOLOGIST · ENCINITAS AND LA JOLLA, CA

MADE IN CALIFORNIA