

# Patient Information on Nuclear Imaging

## What You Need to Know

**CORONARY ARTERY DISEASE (CAD)** is a narrowing of the blood vessels that supply blood and oxygen to the heart. The narrowing is usually caused by fatty deposits inside the coronary arteries that lead to the heart. Such narrowing can restrict the heart from pumping efficiently, cause chest pain, and lead to serious problems such as heart attack or death.

**NUCLEAR IMAGING** is a common procedure given to millions of people every year. This safe and useful test will help your physician see whether you have CAD.

### Q. WHAT IS NUCLEAR IMAGING?

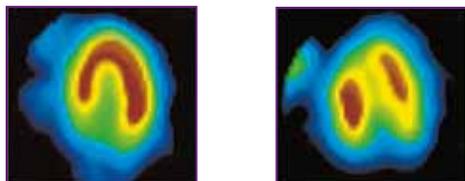
**A.** Nuclear myocardial perfusion imaging (MPI) is a procedure that lets your physician look at the flow of blood to the heart muscle. Let's break it down.

**Nuclear** refers to the tracer that is injected into your bloodstream. This tracer contains a small amount of radiation similar to that used in a common x-ray.

**Myocardial** refers to the heart muscle (myocardium).

**Perfusion** refers to the passage of blood through the circulatory system.

**Imaging** refers to the computer-generated pictures taken during the test by a special camera.



MYOCARDIAL PERFUSION IMAGES, REST (LEFT) AND STRESS (RIGHT)

### Q. WHAT INFORMATION CAN BE LEARNED FROM THIS PROCEDURE?

**A.** Nuclear MPI will help your physician determine:

1. If your heart is receiving enough blood.
2. If you have coronary artery disease (CAD).
3. If more tests are necessary.

### Q. HOW DOES NUCLEAR MPI WORK?

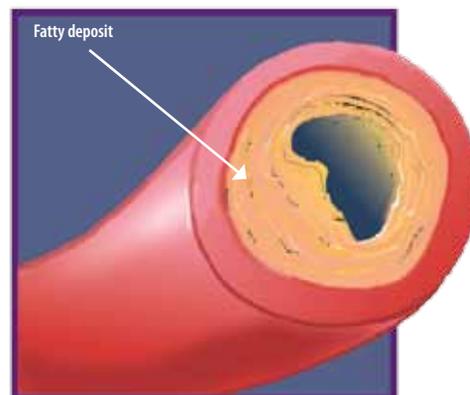
**A.** A nuclear MPI test is performed in 2 parts—when the heart is at stress and when it is at rest. The 2 parts can be performed in either order.

**PART 1.** The heart is stressed. The arteries are expanded (dilated) either by exercise or by using a prescription medication. Patients who are unable to exercise on a treadmill or stationary bike can receive a medication that creates an effect on the heart that is similar to exercise. Healthy coronary arteries dilate more than unhealthy narrow arteries. Once the blood vessels are dilated, a small amount of a radioactive imaging agent is injected. Images taken by a special camera will then show if any part of your heart is not getting enough blood.

**PART 2.** The camera takes 2 sets of pictures. The first set of images shows the pictures of the heart when the blood vessels are dilated (referred to as “at stress”). The second set shows the heart during normal functioning (referred to as “at rest”). The 2 sets of images are compared. A heart with healthy coronary arteries shows little or no difference between images taken during stress and those taken at rest. In a heart with narrow arteries, images taken during stress are different from those taken at rest.



NUCLEAR MPI PROCEDURE



UNHEALTHY (NARROWED) ARTERY

## Q. WHAT CAN YOU DO TO PREPARE FOR THE TEST?

- A.** Check off each item before your test.
- Ask your physician for special instructions if you are a diabetic on insulin or oral hypoglycemic medications.
  - Ask your physician whether you should stop taking any medications prior to the test.
  - Do not eat or drink anything for 3 to 6 hours prior to the test.
  - Refrain from consuming products containing caffeine for at least 12 hours before the test. Certain ingredients in foods and medications may interfere with the test. See the sidebar, "Examples of products containing caffeine, theophylline, or dipyridamole."
  - Wear comfortable clothes and shoes appropriate for brisk exercise on a treadmill or stationary bike.
  - Do not apply any creams, lotions, or powder to your chest area on the day of your test.
  - Inform your physician if you have a history of wheezing, asthma, or chronic lung disease.

## Q. WHAT IF I NEED MEDICATION TO DILATE MY ARTERIES?

- A.** If you are unable to exercise adequately, you will be given a dilating medication. A blood pressure cuff is placed on one arm, and a small intravenous catheter is inserted in your other arm. Small round pads will be gently attached to your chest. The pads are attached to wires that lead to an electrocardiograph (ECG). Within about a minute, both the dilating medication and the imaging agent will be injected through the catheter in your arm.

During this time, your physician will continue to monitor your heart. You may experience side effects similar to exercise, including flushing, chest pressure/pain, shortness of breath, or some other mild discomfort. Such effects are quite normal, and they usually go away within minutes. Be sure to tell the physician or lab personnel how you're feeling.

## Q. WHAT HAPPENS DURING IMAGING?

- A.** For approximately 45 minutes, you will rest on your back, usually with your arms comfortably extended above your head. The camera is then used to take images of the blood flow of your heart. The camera will not come in contact with your body, and doesn't hurt or emit any radiation.

## Q. IS NUCLEAR MPI SAFE?

- A.** Like many people, you may be worried about the radioactive tracer you will receive during the test. That's very understandable. But you can feel comfortable about nuclear MPI. Millions of people undergo nuclear MPI procedures every year. It is generally accepted that the benefit of the information provided by MPI far outweighs any risk associated with the small doses of radiation used. Therefore, *not* having the procedure done may present a higher risk than having it done. If you have any further questions, don't hesitate to ask your physician, nuclear technologist, or nurse. He or she can tell you everything you want to know about your nuclear MPI test.

### EXAMPLES OF PRODUCTS CONTAINING CAFFEINE, THEOPHYLLINE, OR DIPYRIDAMOLE

#### Food and drinks containing caffeine

Chocolate and cocoa; coffee and tea (brewed, instant, iced, or decaffeinated); regular and "caffeine-free" colas or soft drinks

#### Prescription drugs containing caffeine

Fioricet<sup>®</sup>, Fiorinal<sup>®</sup>, Norgesic<sup>™</sup>, and Norgesic Forte<sup>™</sup>

#### OTC drugs containing caffeine

Anacin<sup>®</sup>, Excedrin<sup>®</sup>, and NoDoz<sup>®</sup>

#### Common drugs containing theophylline

Quibron<sup>®</sup>, Slo-Phyllin<sup>®</sup>, and Theo-Dur<sup>®</sup>

#### Common drugs containing dipyridamole

Persantine<sup>®</sup>, Aggrenox<sup>®</sup>

NOTE: THIS IS ONLY A PARTIAL LIST. ASK YOUR PHARMACIST OR PHYSICIAN TO BE SURE WHICH ADDITIONAL PRODUCTS YOU SHOULD AVOID BEFORE YOUR TEST.

[NONE OF THE ABOVE IS A REGISTERED TRADEMARK OF ASTELLAS PHARMA US, INC.]

## A REMINDER FOR YOUR EXAM

Location \_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_

Phone \_\_\_\_\_

Physician \_\_\_\_\_

Return Time \_\_\_\_\_

Instructions \_\_\_\_\_

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