A nuclear medicine exam is used to study the structure and function of the thyroid gland. Read this handout to learn how to prepare for the exam, how the exam works, how the exam is performed, what you may feel during the exam, and how to get your results.

What is a thyroid nuclear medicine exam?

A nuclear medicine exam uses radioactive compounds to detect and treat many diseases. It is a form of radiology, because radiation is used to capture pictures of the human body.

Thyroid nuclear medicine refers to tests that are used to study the structure and function of the thyroid gland.

How does the exam work?

You will be given a small dose of radioactive material by mouth. This compound, called a tracer, collects in the thyroid gland and gives off gamma Beta rays. The gamma camera detects the rays and produces pictures and measurements of your thyroid gland.

How should I prepare for the exam?

• You must have had no X-ray exams involving iodine contrast (such as IVP or CT) in the last 2 to 3 months.

• Stop your PTU or Methimazole thyroid medicine 4 days before your exam. Be sure to check with your doctor first.

• Do not consume any oral iodides (Lugol’s solution, vitamins containing iodine) for 2 weeks before your exam. Do not eat fish, kelp, or other iodine-rich foods for at least 5 days before your exam. You must remain off iodine until the exam is over.

• If you might receive Iodine-131 (I-131) therapy after the uptake and scan, and you are a female of childbearing age, we may send you for a pregnancy blood test on Day 1 of the exam. Plan on 1 more hour to get the results from the pregnancy test. You must tell us if you are pregnant, even if you plan to terminate the pregnancy. Tell us if you are currently breastfeeding. You cannot continue to breastfeed after this exam.
Day 1

- Do not eat after midnight before your exam; you may drink water.
- Upon arrival, you will swallow a capsule containing a tracer.
- You must fast for 1 to 2 more hours (except for water).
- You will be scheduled to return 4 hours later for an uptake study.
- Each visit will take about 15 minutes unless a pregnancy test is ordered.

Day 2

- If you are going to be treated with a therapeutic dose of I-131 after the 24-hour uptake and scan, do not eat any solid foods.
- If you are scheduled for a 24-hour uptake and scan only, you may eat breakfast, but check with the technologist on Day 1.
- The thyroid scan requires an injection of a tracer in your vein followed by a 10- to 15-minute delay before imaging begins. The entire visit takes about 1 to 1½ hours.

How is the exam performed?

Thyroid Survey

1. You will receive a small dose of I-131 by mouth.

2. Two to three days later, you will go under the Nuclear Medicine gamma camera and have pictures taken of your head and torso, to look for leftover thyroid tissue and sites of thyroid cancer. You will lie on the table for about 1 hour while the scan is done.

3. Depending upon the results of this test, you may be treated with a higher dose of I-131.

Therapeutic Dose

1. If we need to treat you for leftover thyroid tissue and/or remaining sites of thyroid cancer, we will typically ask you to come back the day after your thyroid survey.

2. You will receive a higher dose of I-131 by mouth.
3. In most cases, this will require that you stay in the hospital from 2 to 4 days while waiting for your radiation levels to decrease. If you are admitted to the hospital, you will be admitted to the oncology service and will have a room on the 6th floor.

4. Rooms for iodine patients are designed to shield against radiation. These rooms look very much like any other hospital room. Your door will be open, but for safety reasons, visitors will not be allowed past the doorway. Visitors may bring you items and may talk to you from the doorway.

5. The treatment has few side effects. You may have nausea that comes and goes, and you may feel some neck and salivary gland soreness. We will advise you on how to reduce these symptoms. If you are treated in the hospital, the medical staff will attend to any symptoms you might have.

The typical schedule is to receive your diagnostic I-131 dose on a Friday, to be scanned on a Monday, and to be treated, as needed, on a Tuesday or Wednesday.

**What will I feel during the exam?**

- Lying still on the exam table may be hard for some patients.
- Most of the tracer passes out of your body in urine or stool. The rest simply goes away over time.

**Who interprets the results and how do I get them?**

A doctor with special training in nuclear medicine will review the images and forward a report to your doctor. Your doctor will share the results with you.