

## Houston Thyroid and Endocrine Specialists

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### **DIAGNOSIS OF HYPERTHYROIDISM: The Iodine I-123 Uptake Test**

Small doses of radioactive iodine (I-123) can be used to evaluate why a patient has hyperthyroidism with an "uptake test". Your doctor may order this test in order to differentiate high-uptake versus low uptake causes of hyperthyroidism. This testing is done in a simple two-day procedure. The thyroid is essentially the only gland in the body that metabolizes iodine and converts it to thyroid hormone. If a fixed dose of radioactive iodine I-123 is swallowed by a patient, we can determine what percentage of that I-123 is used by the thyroid. The higher the percentage, the more intrinsically overactive the thyroid is acting.

#### ***Preparing for the uptake test:***

Women may have a pregnancy test performed prior to testing. You should inform the doctor if you have recently taken large doses of iodine, seaweed, kelp or had a CT scan with IV contrast within the last month. Also you must remain off drugs commonly used to treat hyperthyroidism such as methimazole or PTU for at least 7 days prior to the treatment,

Day 1: Come to the office swallow a small capsule of low-dose I-123 in the morning. 4-hours later a scan of the thyroid is completed. The scan takes 5-10 minutes while you are seated comfortably.

Day 2: 24 hours later another 5-10-minute scan is completed. Your results are available immediately for treatment decisions.

#### **What is Iodine-123?**

I-123 is the usually isotope used to take pictures of the activity of the [hyperthyroid gland](#) (Thyroid scan and radioactive iodine uptake RAIU) since it is harmless to thyroid cells. No special radiation precautions are necessary after a thyroid scan or RAIU with I-123. Your [endocrinologist](#) will give you more details at the visit.

#### **What will I experience during and after the procedure?**

- Most [thyroid scan and thyroid uptake](#) procedures are painless. When swallowed as a pill, the radiotracer has little or no taste. It is important that you remain still while the images are being recorded. Though nuclear imaging itself causes no pain.

Unless your physician tells you otherwise, you may resume your normal activities after your nuclear medicine scan. If any special instructions are necessary, you will be informed by a technologist, nurse or physician.

Through the natural process of radioactive decay, the small amount of radiotracer in your body

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will lose its radioactivity over time. It may also pass out of your body through your urine or stool during the first few hours or days following the test. You should also drink plenty of water to help flush the radioactive material out of your body as instructed by the nuclear medicine personnel.

#### **What are the Benefits?**

Nuclear medicine examinations offer information that is unique—including details on both function and structure—and often unattainable using other imaging procedures. [The scan can differentiate between high-uptake and low-uptake hyperthyroidism](#)

For many diseases, nuclear medicine scans yield the most useful information needed to make a diagnosis or to determine appropriate treatment, if any.

#### **What are the Risks?**

Because the doses of radiotracer administered are small, diagnostic nuclear medicine procedures result in relatively low radiation exposure to the patient, acceptable for diagnostic exams. Thus, the radiation risk is very low compared with the potential benefits.

Nuclear medicine diagnostic procedures have been used since the 1960's, and there are no known long-term adverse effects from such low-dose exposure.

The risks of the treatment are always weighed against the potential benefits for nuclear medicine therapeutic procedures. You will be informed of all significant risks prior to the treatment and have an opportunity to ask questions.

Allergic reactions to radiopharmaceuticals may occur but are extremely rare and are usually mild. Nevertheless, you should inform the nuclear medicine personnel of any allergies you may have or other problems that may have occurred during a previous nuclear medicine exam.

Women should always inform their physician or radiology technologist if there is any possibility that they are pregnant or if they are breastfeeding. Breastfeeding should be held for 48 hours.

#### **What are the limitations of the Thyroid Scan and Uptake?**

The thyroid scan and thyroid uptake are not performed on patients who are pregnant because of the risk of exposing the fetus to radiation.

The resolution of structures of the body with nuclear medicine may not be as high as with other imaging techniques, such as CT or MRI. However, nuclear medicine scans are more sensitive than other techniques for a variety of indications, and the functional information gained from nuclear medicine exams is often unobtainable by other imaging techniques.