

Radiofrequency Ablation Therapy (RFA) for Thyroid Nodules

What it is and what to expect

This handout explains radiofrequency ablation therapy for thyroid nodules and what to expect during the procedure and recovery.

What is radiofrequency ablation therapy?

Radiofrequency ablation (RFA) is a procedure performed by a team of endocrinologists. RFA uses radio waves to create heat that reduces the size of thyroid nodules. RFA is a less invasive alternative to surgery or radioactive iodine therapy (RAI). RFA is a safe way to treat patients with symptomatic thyroid nodules.

What are the benefits of RFA?

RFA protects other parts of the thyroid more than surgery or RAI. This means RFA lowers risk of developing a condition called *primary hypothyroidism* (low thyroid hormone). Recovery is much faster than surgery and does not cause surgical scars.

What type of thyroid nodules does RFA treat?

RFA is used to treat:

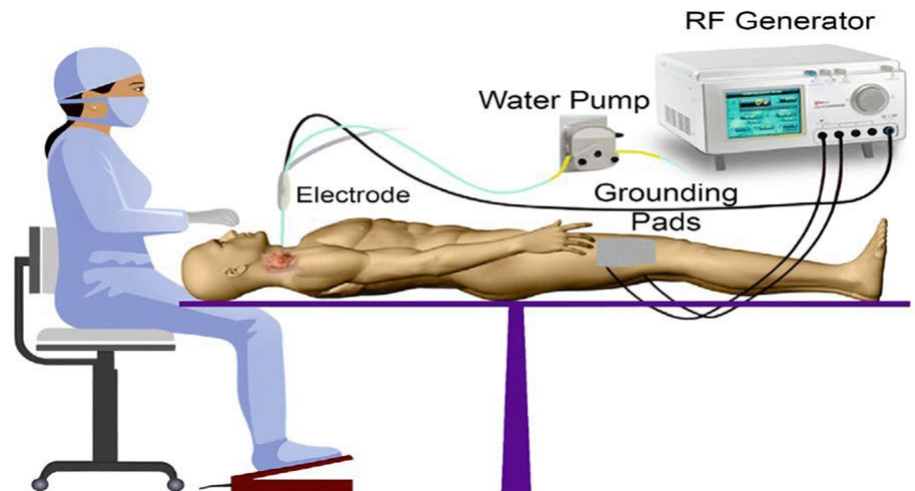
- Solid, or mostly solid, *benign* (not cancerous) thyroid nodules.
- Thyroid nodules that cause pressure or cosmetic problems.
- Over-functioning toxic thyroid nodules (hot nodules).

What can I expect before and during the procedure?

Thyroid RFA is an outpatient procedure, meaning you will be able to go home after the procedure. On the day of the procedure, you will come into the office-based procedure room. The procedure will be done while you are lying flat on the bed.

- Your neck will be cleaned with alcohol and a surgical cleanser to reduce the risk of infection. You will be wearing a gown.

- Most patients are given *local anesthetic* (medicine to block pain in a small area of the body). Some patients may receive a mild *sedative* (medicine to make you sleepy).
- Your provider will use ultrasound to find the thyroid nodule.
- Once they find the nodule, your provider will place a special needle called an *electrode* into the nodule. The anesthetic will prevent you from feeling pain. You may feel light buzzing or tingling.
- The electrode will apply small, frequent electric vibrations that will create friction in the target tissue. This friction will cause a small region of heat to destroy the tissue of the thyroid nodules. Since the vibration is so small, it only affects this small area without causing any damage to nearby tissues.
- A water pump will run water through the electrode at all times during the procedure to keep the electrode from over-heating.
- Grounding pads will absorb all unused electric vibrations.
- After the procedure, your neck will be cleaned and a band-aid will be placed over the needle entry site.



Your provider will use a radio frequency generator (RF generator) to lead the radio frequency through the electrode into your thyroid nodule.

What can I expect in recovery?

The procedure usually lasts about 30 minutes to 1 hour, depending on the size of the thyroid nodule. You will leave the clinic the same day with only a small bandage. After the procedure, you may experience minor discomfort and bruising. You may treat this with over-the-counter pain medications. The procedure will leave no scar.

How do I prepare for RFA?

- Please take the medications your provider prescribed 30 minutes before the procedure. These will make you slightly sleepy during the procedure.
- Please make sure to bring someone who can drive you home, as you may feel sleepy after the procedure.
- If you are on a blood thinner, consult the provider who prescribes your blood-thinning medication. Use this table to determine when to stop your medication before the procedure:

Class	Medications	When to stop	When to restart
Anti-platelet agents	Aspirin Clopidogrel	7-10 days before	24 hours after the procedure
Indirect anticoagulants	Warfarin	5 days before	
Direct anticoagulants	Apixaban Dabigatran Edoxaban Rivaroxaban	24-36 hours before	

What are the risks?

All procedures have risks, and your provider will talk to you about the risks of RFA. Thyroid RFA is considered a safe procedure, with a permanent complication rate of less than 0.1% (1 in 1,000 people). Potential risks include:

- A small bruise or localized bleeding
- Temporary voice changes – 9 in 1,000 people
- Permanent voice changes - 3 in 1,000 people
- *Hematoma* (blood pooling) – 8 in 1,000 people
- Vomiting – 5 in 1,000 people
- Skin burns – 27 in 10,000 people
- Nodule rupture – 3 in 1,000 people
- Hypothyroidism – 1 in 1,000 people
- Nerve injury - 4 in 1,000 people
- Occasionally, treatment may fail. If this happens, the nodule may re-grow and repeat treatment may be necessary.

Who cannot have RFA?

Pregnant patients and patients with cardiac pacemakers should not have RFA. RFA also may not be used if your thyroid nodule is close to critical structures such as the nerve to the vocal cord, esophagus, or major blood vessels.

How does RFA compare to laser, freezing (*cryo*), or ethanol ablation?

These forms of treatment are all minimally invasive ways to destroy tissue. RFA is a better option for solid or complex thyroid nodules. For most *cystic nodules* (nodules filled with fluid), ethanol ablation is a good option.

What can I expect after the procedure?

Because RFA is used for benign nodules, the primary goal is to reduce the size of the nodule. Patients usually notice a reduction in size about 1 month after the procedure. The nodule will usually continue getting smaller for the next 12 to 24 months.

RFA does not make the thyroid nodule go away completely. In most cases, after 1 session, patients will be symptom-free from the reduction in size of the nodule. A small percentage of patients with very large nodules may need more than 1 session later on.

You may resume your regular activities and diet immediately after the procedure. However, please avoid strenuous activity (such as jogging, working out, lifting more than 10 pounds). If you have soreness at the procedure site, you may take over-the-counter pain medicine, such as Tylenol (acetaminophen) or Motrin (ibuprofen) or use an ice pack. If the pain is severe, your provider may recommend steroids.

QUESTIONS?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

Endocrinology Clinic: Call 206.598.6288 weekdays from 8:00 a.m. to 4:00 p.m.

After hours and on weekends and holidays, call 206.598.3300 and ask to page the nurse on call.