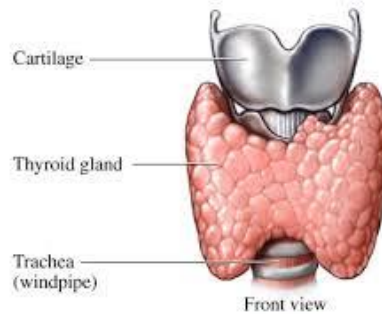
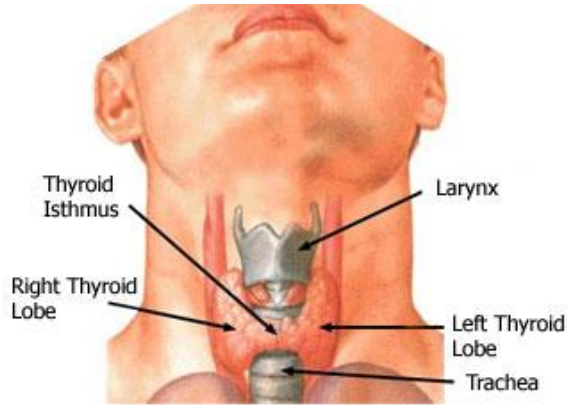


THE THYROID.



The thyroid gland is *located in the lower part of the neck, below the Adam's apple*, wrapped around the trachea (windpipe). It has the shape of a butterfly: two wings (lobes) attached to one another by a middle part called the isthmus.

It is a gland that produces and stores hormones that help regulate the heart rate, blood pressure, body temperature, and the rate at which food is converted into energy. Thyroid hormones also help children grow and develop.



The thyroid uses *iodine*, a mineral found in some foods and in iodized salt, to make its hormones. The two most important thyroid hormones are *thyroxine (T4)* and *triiodothyronine (T3)*. Thyroid stimulating hormone (TSH), which is produced by the pituitary gland, acts to stimulate hormone production by the thyroid gland. The thyroid gland also makes the hormone *calcitonin*, which is involved in calcium metabolism and stimulating bone cells to add calcium to bone.

THYROID DISORDERS.

Thyroid disorders can range from a small, harmless *goiter (enlarged gland)* that needs no treatment to *life-threatening cancer*. The most common thyroid problems involve abnormal production of thyroid hormones. Too much thyroid hormone results in a condition known as *hyperthyroidism*. Insufficient hormone production leads to *hypothyroidism*.

Most thyroid problems can be managed well if properly diagnosed and treated early.

What Causes Thyroid Disorders/ Problems?

All types of **hyperthyroidism** are due to an *overproduction of thyroid hormones*, but the condition can occur in several ways:

- **Graves' disease:** The production of too much thyroid hormone.
- **Toxic adenomas:** Nodules develop in the thyroid gland and begin to secrete thyroid hormones, upsetting the body's chemical balance; some goiters may contain several of these nodules.
- **Subacute thyroiditis:** Inflammation of the thyroid that causes the gland to "leak" excess hormones, resulting in temporary hyperthyroidism that generally lasts a few weeks but may persist for months.

- **Pituitary gland malfunctions or cancerous growths** in the thyroid gland: Although rare, hyperthyroidism can also develop from these causes.

Hypothyroidism, by contrast, stems from an *underproduction of thyroid hormones*. Since your body's energy production requires certain amounts of thyroid hormones, a drop in hormone production leads to lower energy levels. Causes of hypothyroidism include:

- **Hashimoto's thyroiditis:** In this autoimmune disorder, the body attacks thyroid tissue. The tissue eventually dies and stops producing hormones.
- **Removal of the thyroid gland:** The thyroid may have been surgically removed or chemically destroyed.
- **Exposure to excessive amounts of iodide:** Cold and sinus medicines, the heart medicine amiodarone, or certain contrast dyes given before some X-rays may expose you to too much iodine.
- **Lithium:** This drug has also been implicated as a cause of hypothyroidism.

If untreated for long periods of time, hypothyroidism can bring on a **myxedema coma**, a rare but potentially fatal condition that requires immediate hormone treatment.

Hypothyroidism poses a special danger to newborns and infants. A lack of thyroid hormones in the system at an early age can lead to the development of cretinism (mental retardation) and dwarfism (stunted growth). In infants, as in adults, hypothyroidism can be due to these causes:

- A pituitary disorder
- A defective thyroid
- Lack of the gland entirely

A hypothyroid infant is unusually inactive and quiet, has a poor appetite, and sleeps for excessively long periods of time.

Cancer of the thyroid gland is quite rare and occurs in about 5% of thyroid nodules. You might have one or more thyroid nodules for several years before they are determined to be cancerous.

People who have received radiation treatment to the head and neck earlier in life, tend to have a higher-than-normal risk of developing thyroid cancer.

DIAGNOSIS

Diagnosis of thyroid disorders is done through:-

- Examining the patient's medical history and clinical presentation.
- Examining patient's family history.
- Physical examination.
- Blood tests to determine the levels of thyroid hormone and Thyroid Stimulating hormone.
- Radioiodine uptake tests:
- Thyroid computerized topographic scans
- Ultrasound to differentiate between fluid filled and solid nodules.
- Biopsy tests to determine if a nodule is malignant (cancerous) or benign (non-cancerous).

It is common medical knowledge, that:

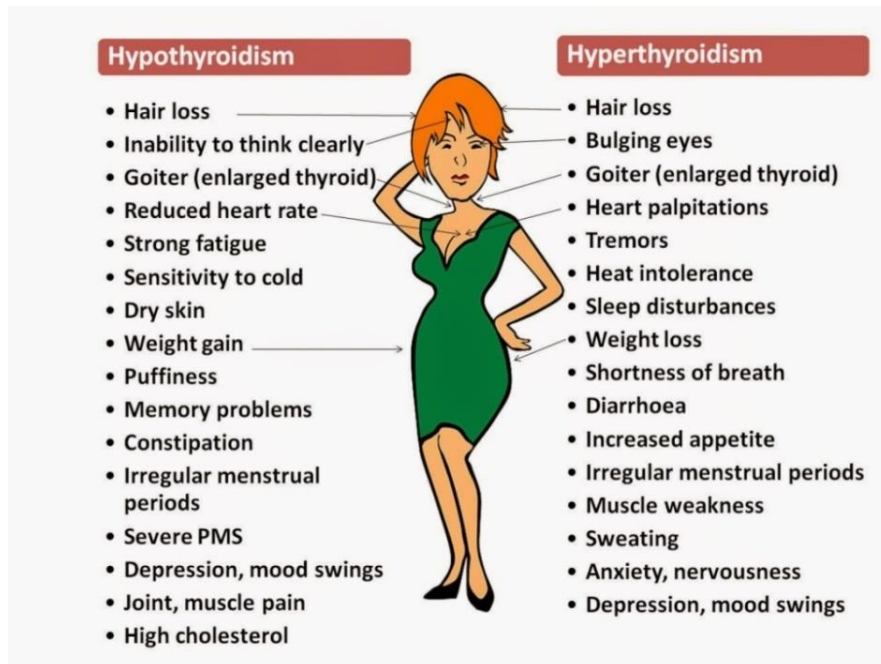
- 1) a person's "body temperature at rest" reflects their metabolic rate
- 2) this metabolic rate is largely determined by hormones secreted by the thyroid gland.

The function of the thyroid gland can then be determined by:

- 1) testing the levels of thyroid hormones
- 2) measuring a person's resting temperature/BBT.

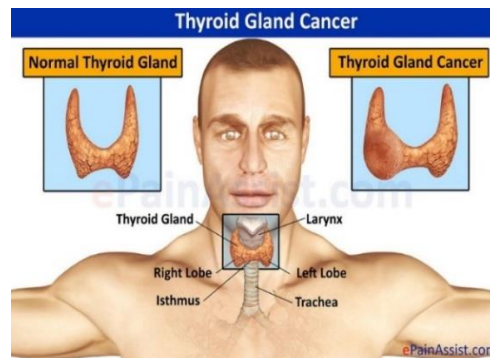
To evaluate the different thyroid hormone levels, you need a doctor. But measuring your BBT you do yourself in your own home. All that you need do is purchase a Basal Body Thermometer and take your temperature as instructed by the doctor.

Common signs & symptoms of hypothyroidism and hyperthyroidism.



The thyroid may develop small lumps such as cysts, tumors and cancers. These lumps are called **nodules**. Most nodules are non-cancerous or benign. Most of the times they do not affect the hormone levels..

THYROID CANCER.



Thyroid cancer is a disease that you get when abnormal cells begin to grow in your thyroid gland. The exact cause is not known but like other cancers, changes in the DNA of your cells seem to play a role. These DNA changes may include changes that are inherited as well as those that happen as you get older.

Risk factors.

Things that increase the likelihood of acquiring thyroid cancer include:-

- Age. Risk increases with increase in age.
- Being female.
- Exposure to high levels of radiation, such as after a nuclear power accident.
- A personal or family history of thyroid disease or thyroid cancer. One rare type of thyroid cancer, called medullary thyroid cancer (MTC), runs in families.
- A family history of conditions such as MEN (multiple endocrine neoplasia) or FMTC (familial medullary thyroid carcinoma).
- A history of radiation treatments to the head, neck, or chest during childhood.
- Other inherited medical conditions, such as Gardner's syndrome and familial polyposis.

Symptoms.

Thyroid cancer can cause several symptoms:

- You may get a lump or swelling in your neck. This is the most common symptom.
- Pain in your neck and sometimes in your ears.
- Trouble swallowing.
- Trouble breathing or have constant wheezing.
- Voice hoarseness.
- You may have a frequent cough that is not related to a cold.



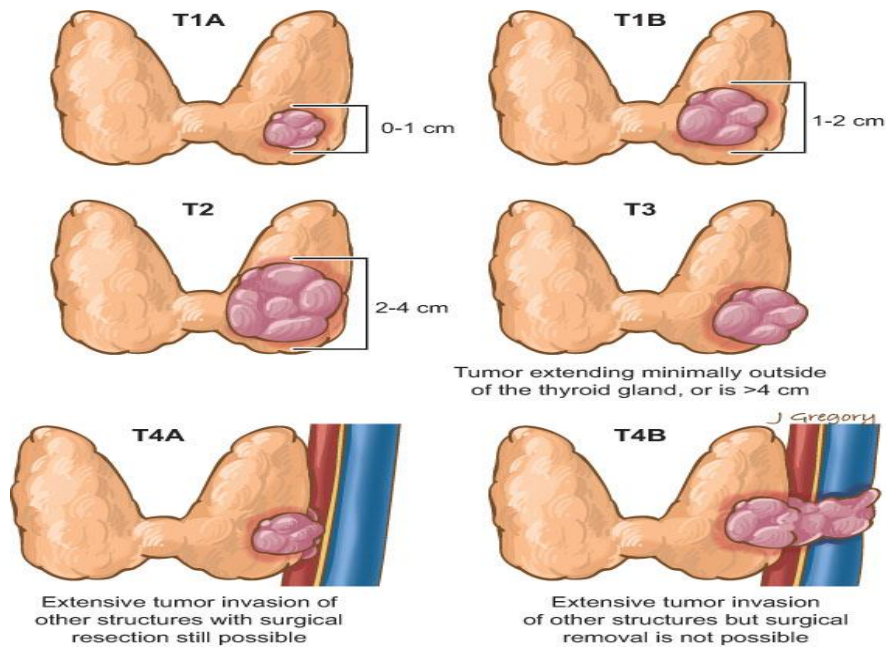
Thyroid Cancer.



Ulcerated thyroid cancer.

Staging.

Stage refers to how severe the disease is and how far, if at all, the cancer has spread.



Treatment.

Thyroid cancer is treated with surgery and often with radioactive iodine. It rarely needs radiation therapy or chemotherapy. What treatment you need depends on your age, the type of thyroid cancer you have, and the stage of your disease.

Surgery.

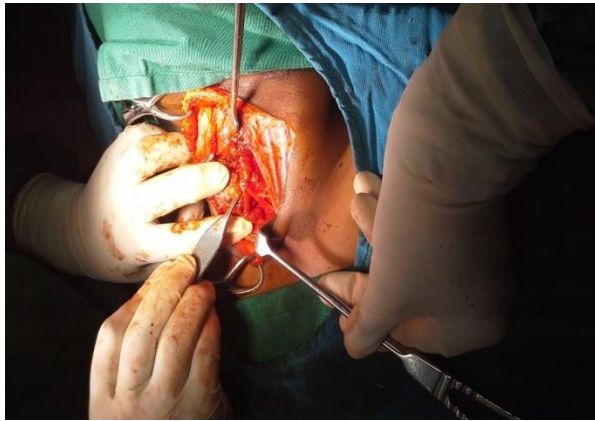
Thyroid surgery is used to treat thyroid nodules, thyroid cancer, and hyperthyroidism. During this procedure, part or all of the thyroid gland is removed.

The kind of surgery you have may depend on your age, the type of nodule/ cancer you have, how much the cancer has spread, and your general health.

Surgery can be performed conventionally (open surgery) or endoscopically (Minimally invasive Video assisted thyroidectomy (MIVAT):

Open Surgery/ thyroidectomy.

Radical neck dissection.



Minimally invasive Video assisted thyroidectomy(MIVAT): Is a minimally invasive surgery to remove the thyroid gland; a tiny video camera (laparoscope) and surgical instruments are inserted into several small "keyhole" incisions in the neck to perform the surgery.



Surgery choices

- **Thyroid lobectomy** removes only the affected part (lobe) of the thyroid gland.
- **Near-total thyroidectomy** removes all but a very small part of the thyroid gland. This is done in special cases with smaller tumors or if an experienced surgeon is not available.
- **Total thyroidectomy** removes the entire thyroid gland and all adjacent neck lymph nodes. This is the most common type of surgery (**Radical Thyroidectomy**). It provides the highest rates of cure and also makes radioactive iodine treatment and thyroid hormone therapy work better.

During surgery, lymph nodes in the neck are removed and tested for cancer cells (lymphadenectomy). If thyroid cancer has spread to the lymph nodes, radioactive iodine is used to destroy the remaining cancer cells.

Medication.

Although thyroid cancer is generally treated with surgery, medicines may also be needed to treat the cancer and to replace thyroid hormones. These include:-

- **Radioactive iodine**, which is used after surgery to destroy any remaining thyroid tissue.
- **TSH suppression therapy** to reduce the TSH in your body. This slows the growth of any remaining cancer cells.
- **Thyroid hormone medicine** to replace necessary thyroid hormones that are made by your thyroid gland. If your thyroid gland is surgically removed, you will likely need to take thyroid replacement pills for the rest of your life.
- **Chemotherapy**, which sometimes is used to treat thyroid cancer that has come back after surgery and to treat anaplastic thyroid cancer that does not respond to radioactive iodine.

Foods That Interfere with Thyroid Medication & Function

The following foods bind iodine which in turn affects your thyroid function, whether or not you have thyroid disease.

You can take your thyroid medicine at any time of the day or night - just be consistent with when you take it. If you take your thyroid medicine in the morning, you can easily separate these foods by several hours from your thyroid medication.

As for quantities of these foods - go easy on them and vary the ones you eat, as they may have one or more and varying quantities of the several known goitrogenic phytochemicals:-Cabbage, cauliflower, Calcium-enriched foods, Kale, Lentil, Milk and milk products (cheese, cream cheese, cottage cheese, yogurt), Oats, Soybean (soymilk, textured soy protein, soy yogurt, etc.)

Prevention.

Most cases of thyroid cancer cannot be prevented. However when detected early, the prognosis is very good. Eating a healthy, balanced diet is the best way to avoid getting thyroid cancer and all other types of cancer.

A low-fat, high-fibre diet is recommended that includes plenty of fresh fruit and vegetables (at least five portions a day) and whole grains.

September is the thyroid cancer awareness month. We all have a responsibility to share information and get screened.