

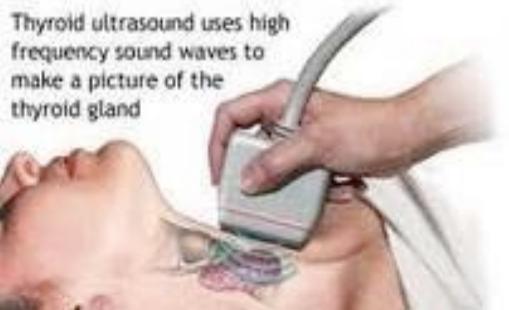
This document was created by a medical student enrolled in the Rural Physicians Associate Program (RPAP) at the University of Minnesota Medical School as part of the course project. The aim of the project is to present information on a medical topic in the format of a patient education handout. It does not necessarily reflect the views of the University of Minnesota Medical School physicians and faculty. These materials are provided for informational purposes only and are in no way intended to take the place of the advice and recommendations of your personal health care provider. The information provided may no longer be up to date since it has not been reviewed since the date of creation. The information provided should not be used to diagnose a health problem or disease, or as a means of determining treatment. In the event of a medical emergency, immediately contact a doctor or call 911.

# Diagnosis

Diagnosing the problems with your thyroid gland may involve these tests:

-TSH, T<sub>3</sub> and T<sub>4</sub> Blood Test: measures the levels of these hormones in the blood

-Ultrasound



-Fine Needle Aspiration Biopsy: using a small diameter needle to take samples of cells and tissue out of the thyroid. Typically performed with ultrasound guidance.

## RESOURCES

[www.uptodate.com](http://www.uptodate.com)

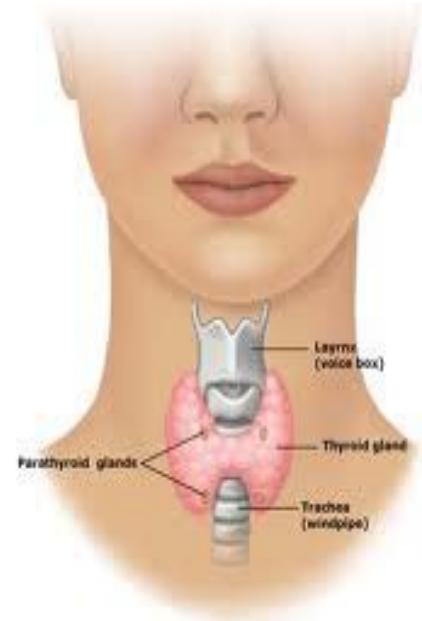
Ahn, Sung Soo; et al. Biopsy of Thyroid Nodules: Comparison of the Three Sets of Guidelines. *AJR*: 194:31-37, January 2010.

Ginat, DT et al, 2010). Pearls and pitfalls of thyroid nodule sonography and fine-needle aspiration. *Ultrasound Quarterly*, 26(3),

## More Information:

<http://www.mayoclinic.com/health/DiseasesIndex/DiseasesIndex/METHOD;displayAlphaList&LISTTYPE=mcDisease&LETTER=t>

Thyroid problems are listed



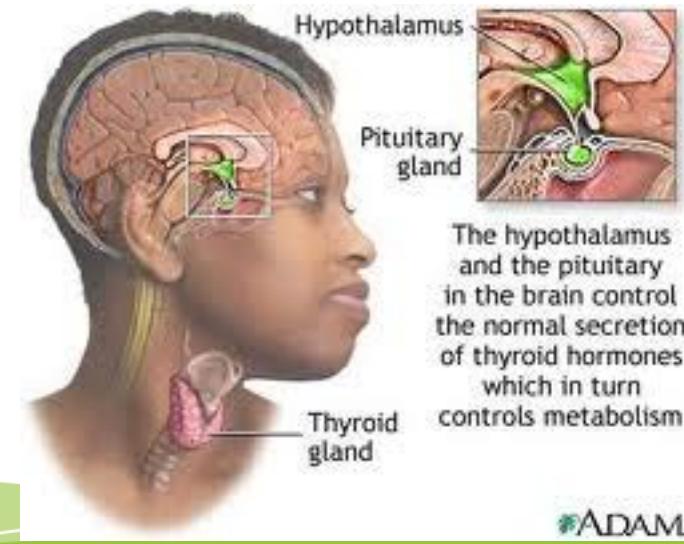
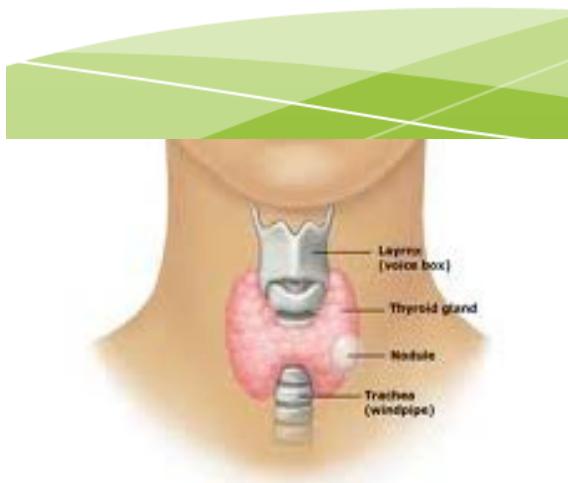
Prepared by Dan Freeman MS3

# Thyroid

A brief guide to thyroid related problems, diagnosis, and treatment

# What is the Thyroid?

The thyroid is a gland located in the neck on the front (anterior) of the windpipe (trachea) that is responsible for the release of the thyroid hormones, T<sub>3</sub> and T<sub>4</sub>. These hormones are released with stimulation from the pituitary gland (seen right) by thyroid stimulating hormone (TSH). T<sub>3</sub> and T<sub>4</sub> regulate or influence numerous processes in the body, primarily metabolism and growth. The thyroid gland also houses the parathyroid glands. These release parathyroid hormone, which is responsible for bone development and calcium regulation in the body.



ADAM

## Thyroid Problems

**Hyperthyroidism:** Over activity of the thyroid gland, either by over stimulation (by TSH or immune system) or over production .

**Symptoms:** heat intolerance, weight loss, racing or irregularly beating heart, nervousness, insomnia, and tremors.

**Treatments:** medications methimazole, propylthiouracil , beta blockers, steroids, radioactive ablation, or surgical removal,

**Hypothyroidism:** Under activity of the thyroid gland, under stimulation or underproduction of thyroid hormones, typically due to low iodine, dysfunctional gland, or immune system destruction.

**Symptoms:** Weight gain, lethargy, cold intolerance, depression, muscle aches, and hoarseness.

**Treatment:** Levothyroxine—replacement thyroid

hormone

**Thyroid nodules:** Abnormal enlargement or multiplication of cells of the thyroid gland. Can be caused by low iodine, hypothyroidism, radiation to neck, fluid filled cyst, inflammation and thyroid cancers.

**Symptoms:** palpable, swelling, difficulty swallowing, hoarseness, sudden weight loss, and enlarged lymph nodes of neck and jaw.

**Treatment:** dependent on the cause of the nodules. Most thyroid nodules are benign (not harmful)

**Thyroiditis:** inflammation of the thyroid gland due to infection, dysfunction, over / under stimulation, or drug induced (amiodarone, interferon, etc)

**Symptoms:** same as hyper or hypothyroid disorders

**Treatment** is dependent on cause. Can include treatments of hyper /hypothyroid, steroids, or discontinuing medications