



## Thyroid Disease

The thyroid gland is a small butterfly-shaped gland, located in the neck, below the Adam's Apple. The thyroid produces an iodine based hormone. Thus, iodine is a necessary nutrient in food, iodized salt, or supplements.

A goiter is an enlarged thyroid. A toxic goiter overproduces thyroid hormones while a non-toxic (*or euthyroid*) goiter does not overproduce hormones. Many non-toxic goiters are smooth and diffusely enlarged (*simple goiter*); others are nodular (*lumpy*).

Thyroid nodules are very common and most will be benign. Fine needle aspiration (FNA) is the preferred initial test to distinguish between benign and malignant nodules. A thyroid ultrasound provides information on nodule size and texture. Small, simple nodules are more likely to be benign cysts while complex and large nodules are more risky for cancer. A cold nodule (especially if over one cm in size) is risky for cancer. A nuclear scan provides important information on thyroid nodule function.

"Hot" nodule	Overfunctioning
"Warm" nodule	Normal functioning
"Cold" nodule	Non-functioning

Hyperthyroidism refers to any condition in which too much thyroid hormone is produced. Laboratory evaluation reveals high levels of thyroxine (T4) and triiodothyronine (T3). TSH is typically low. Causes include Graves disease, toxic nodular or multinodular goiter, or thyroiditis. Symptoms include: fast or irregular heartbeat, weight loss, anxiousness, sweats, heat intolerance, tremor. Treatment includes drugs to control symptoms and to lower thyroid hormone production. Radiation therapy and surgical removal of the thyroid gland are also commonly used.

Hypothyroidism is a deficiency of thyroid hormones. Symptoms are related to slow metabolism: weight gain, hair loss, dry skin, cold intolerance, slow pulse, constipation, menstrual irregularities, edema. Laboratory evaluation shows low levels of thyroxine (T4) and triiodothyronine (T3). TSH level is typically high (*except in secondary hypothyroidism when the hypothyroidism is due to a pituitary impairment*). Most cases of hypothyroidism are easily treated with thyroid hormone replacement. Causes of hypothyroidism include chronic lymphocytic thyroiditis, surgical removal of the thyroid gland, destruction of the gland by medication or radiation therapy, side effects of drugs such as Lithium and Cardorone, and congenital thyroid gland impairments.

Malignant changes of the thyroid are covered in *Thyroid Cancer Rx for Success #85*.

Treated benign thyroid disease is not rated.

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