

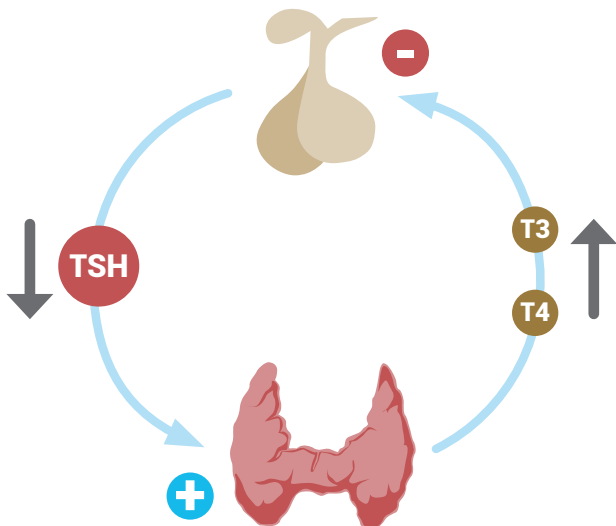
HYPERTHYROIDISM

Identifying the causes of primary hyperthyroidism

Hyperthyroidism is too much thyroid hormone, with elevated T3 and T4 levels on labs.

Primary hyperthyroidism

If this is due to overproduction from the thyroid, the higher T3/T4 levels will suppress the pituitary and result in low TSH. This is called primary hyperthyroidism.

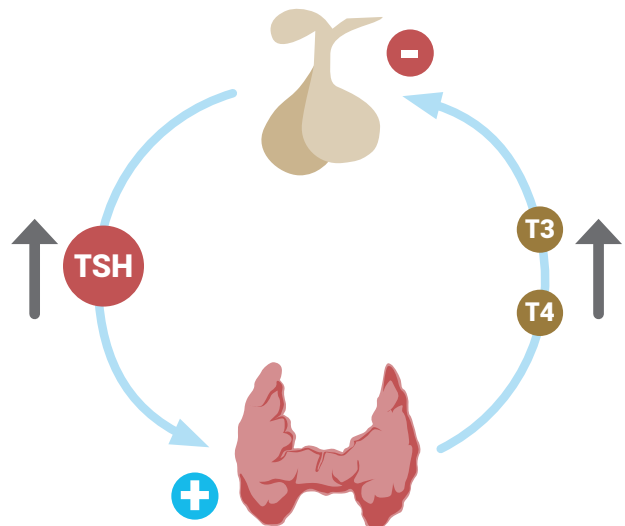


There are several causes of this:

- Antibodies stimulating the TSH receptor (Graves' disease)
- Autonomous thyroid hormone production by a thyroid nodule
- Damage to the thyroid leading to release of stored hormone (thyroiditis)

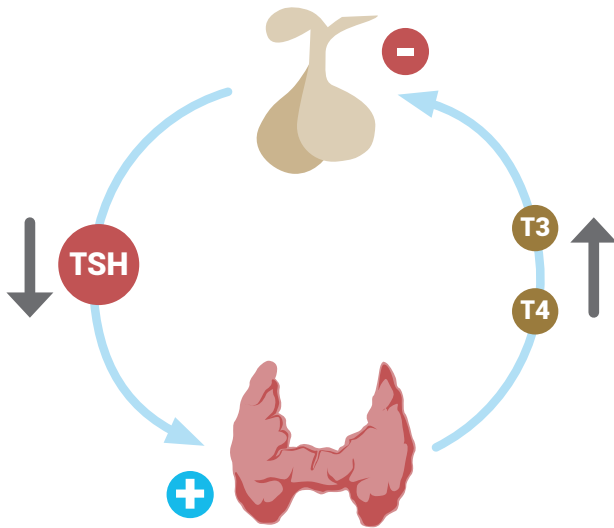
Secondary hyperthyroidism

If the excess thyroid hormone is due to increased stimulation from the pituitary, the TSH and T3/T4 will be elevated. This is secondary hyperthyroidism.



This would be seen with a TSH-secreting pituitary tumor.

Other causes of hyperthyroidism include iatrogenic effects from taking too much thyroid hormone, or ectopic thyroid hormone production seen with some ovarian tumors. In these cases the high thyroid hormone levels would suppress the TSH, so labs would show elevated T3/T4 and low TSH.



Further reading

Ross DS. American Thyroid Association guidelines for diagnosis and management of hyperthyroidism and other causes of thyrotoxicosis. *Thyroid*. 2016. 26(10):1343–1421.