

THYROID AND PARATHYROID GLANDS

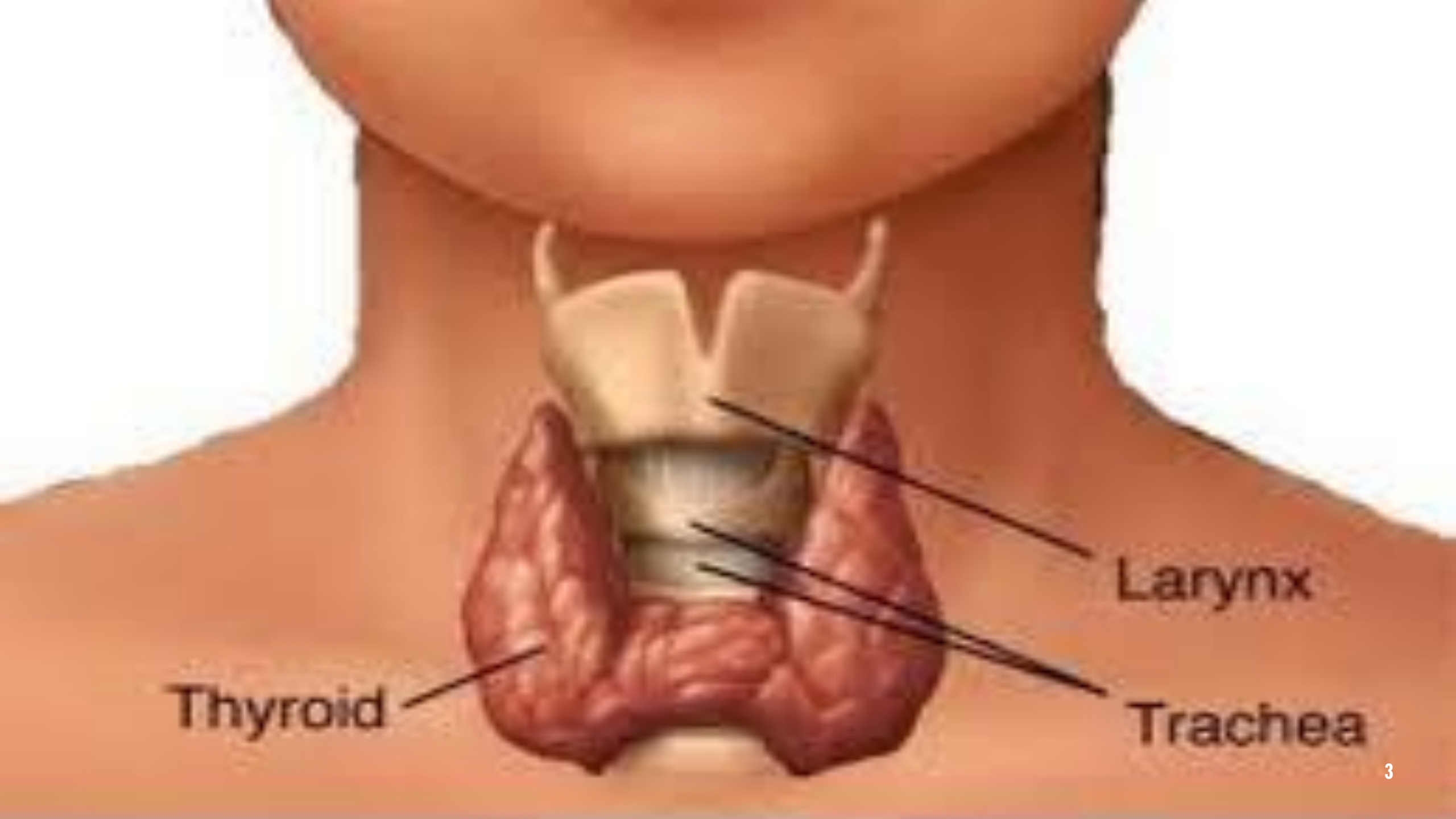
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The thyroid gland is a part of endocrine system, which secretes specific hormones to the blood stream.

It consists of two lobes connected by a midpiece called the isthmus.



This anatomical diagram illustrates the lower neck and upper chest area. The larynx is shown as a series of cartilaginous rings at the top, with the trachea continuing as a series of rings below it. The thyroid gland is depicted as a reddish, butterfly-shaped structure situated in front of the trachea. Labels with leader lines identify the 'Thyroid', 'Larynx', and 'Trachea'.

Thyroid

Larynx

Trachea

The thyroid gland produces three hormones:

Thyroxine(T4)

Triiodothyronine (T3)

Calcitonin

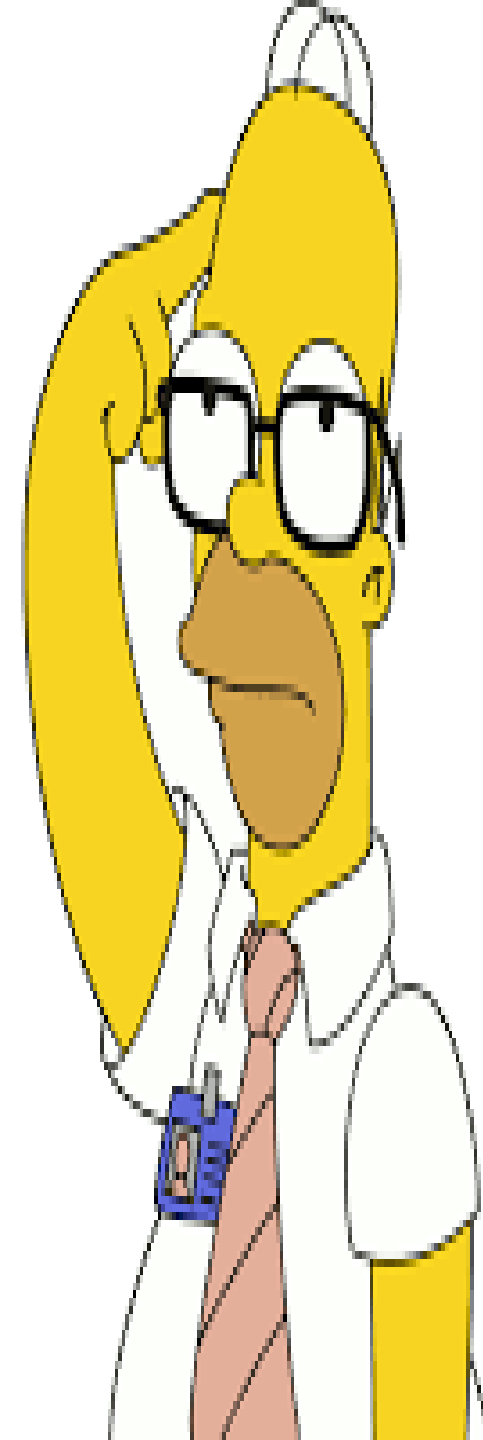
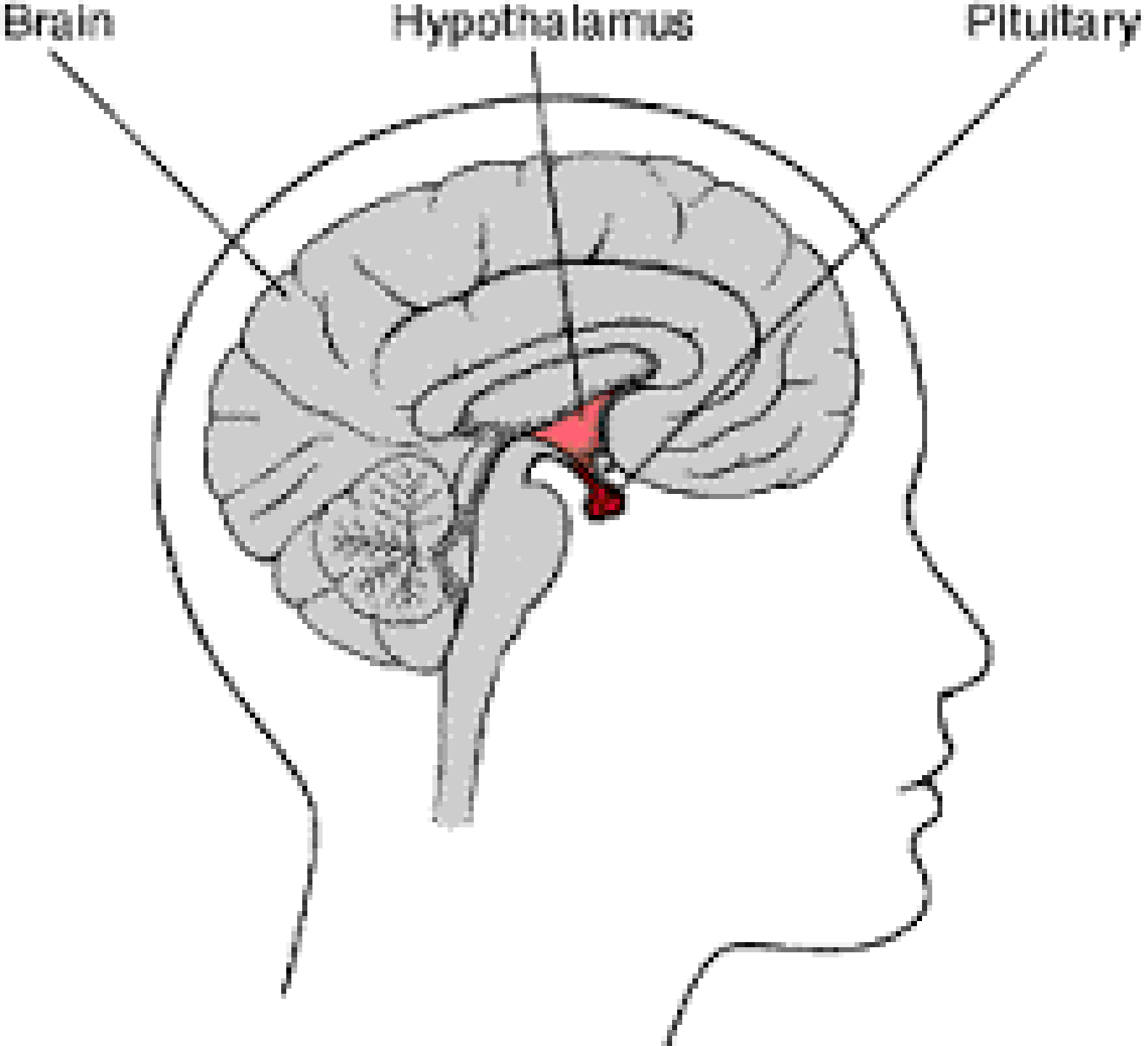
Function of Thyroid Hormone

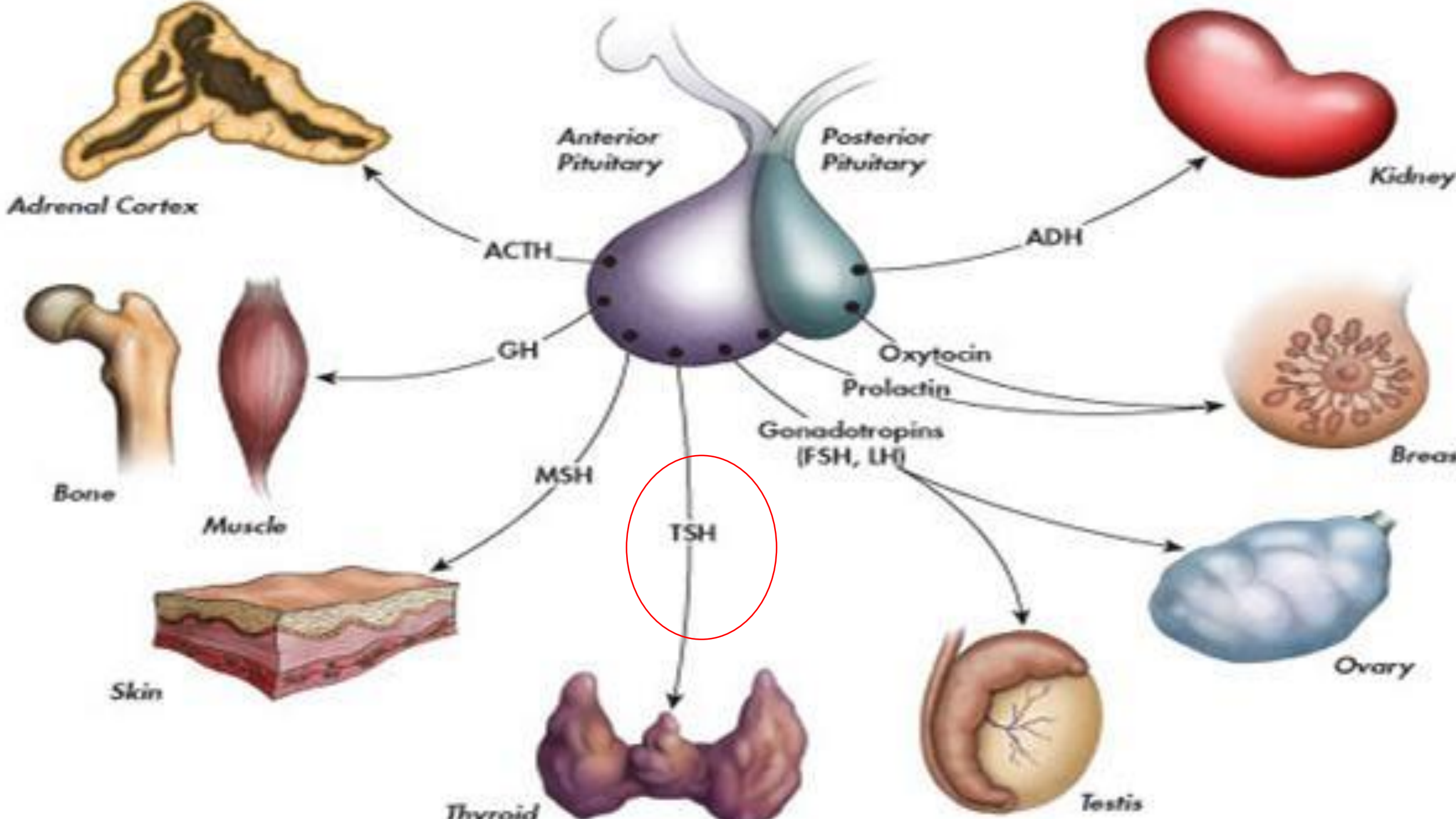
T4

T3

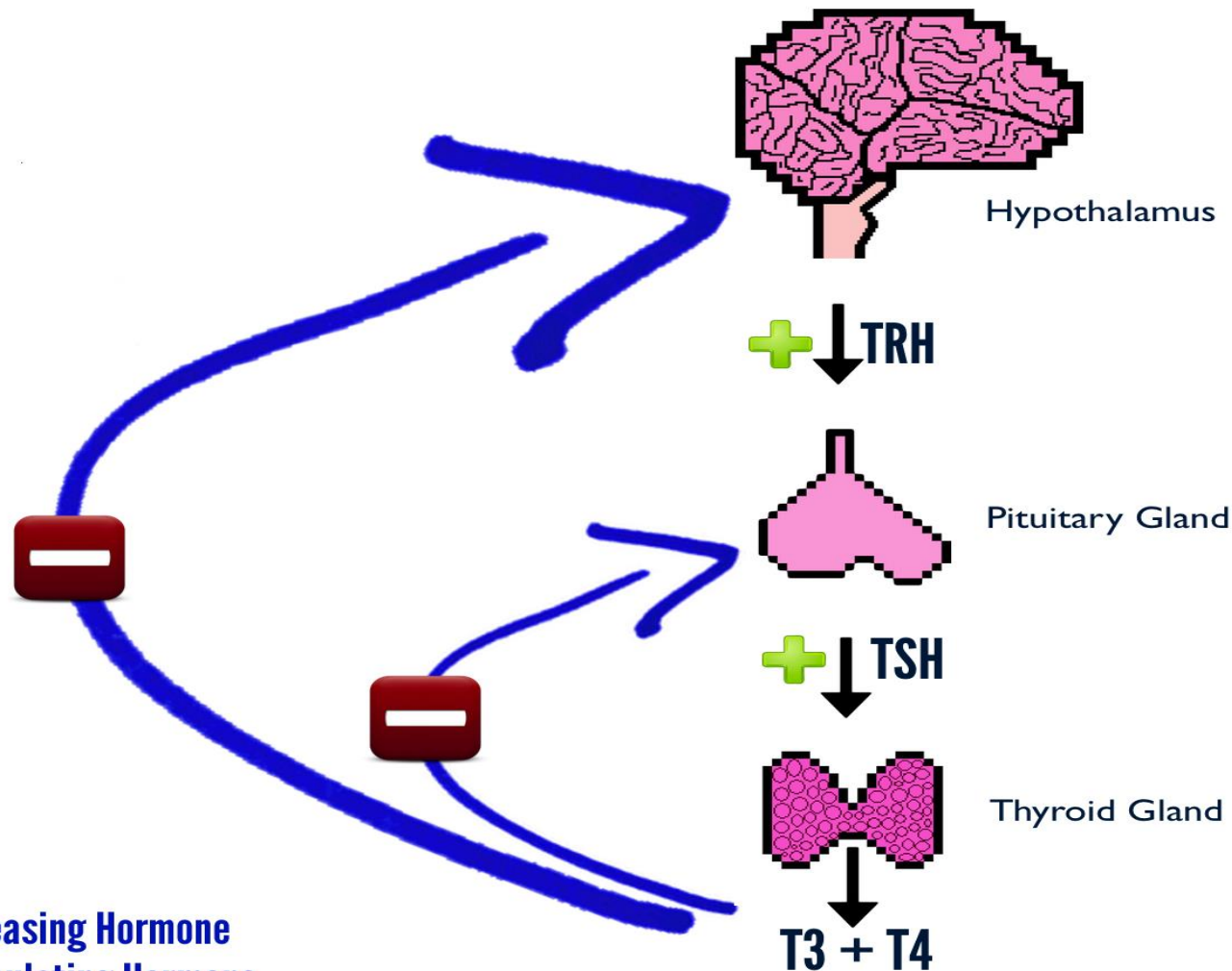
increase metabolic
processes







Hypothalamic - Pituitary - Thyroid Axis



TRH = Thyroid Releasing Hormone
TSH = Thyroid Stimulating Hormone



SEE YOU SOON!



Calcitonin

Laboratory and Diagnostic Studies:

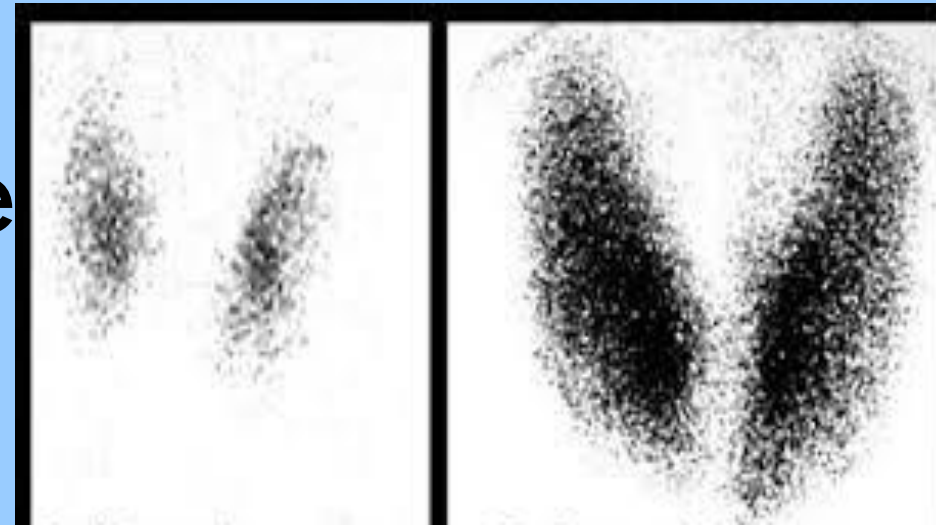
T3 (70 to 220 ng/dL)

T4 (4.5 to 11.5 $\mu\text{g/dL}$)

TSH (0.4 to 5 mIU/L)

Ultrasound, CT, MRI

Radioactive iodine uptake



Hypothyroidism

Causes:

- *Autoimmune disease
- *Atrophy of thyroid gland with aging
- *Therapy for hyperthyroidism: radioactive iodine, thyroidectomy, antithyroid medications
- *Radiation
- *Iodine deficiency

Hypothyroidism:

*Primary  \downarrow TH \uparrow TSH

*Secondary  \downarrow TH \downarrow TSH

*Tertiary  \downarrow TH \downarrow TSH \downarrow TRH

Now! Can you tell me
what are
the S&S of



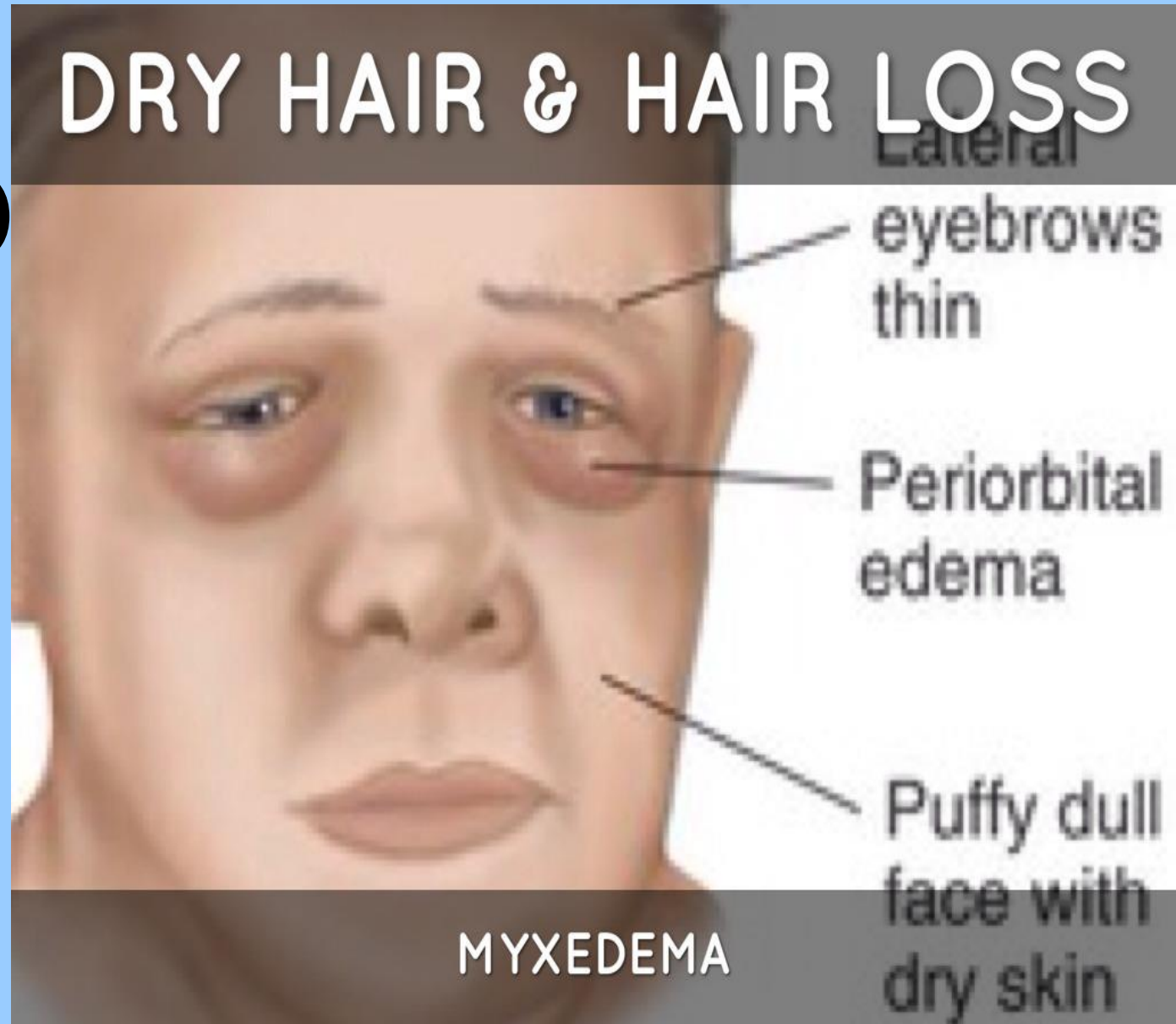
hypothyroidism?

HYPOTHYROIDISM



Mary's story; Read page 895 in
Williams & Hopper(2015).

Myxedema
(a nonpitting edema)
sever
hypothyroidism



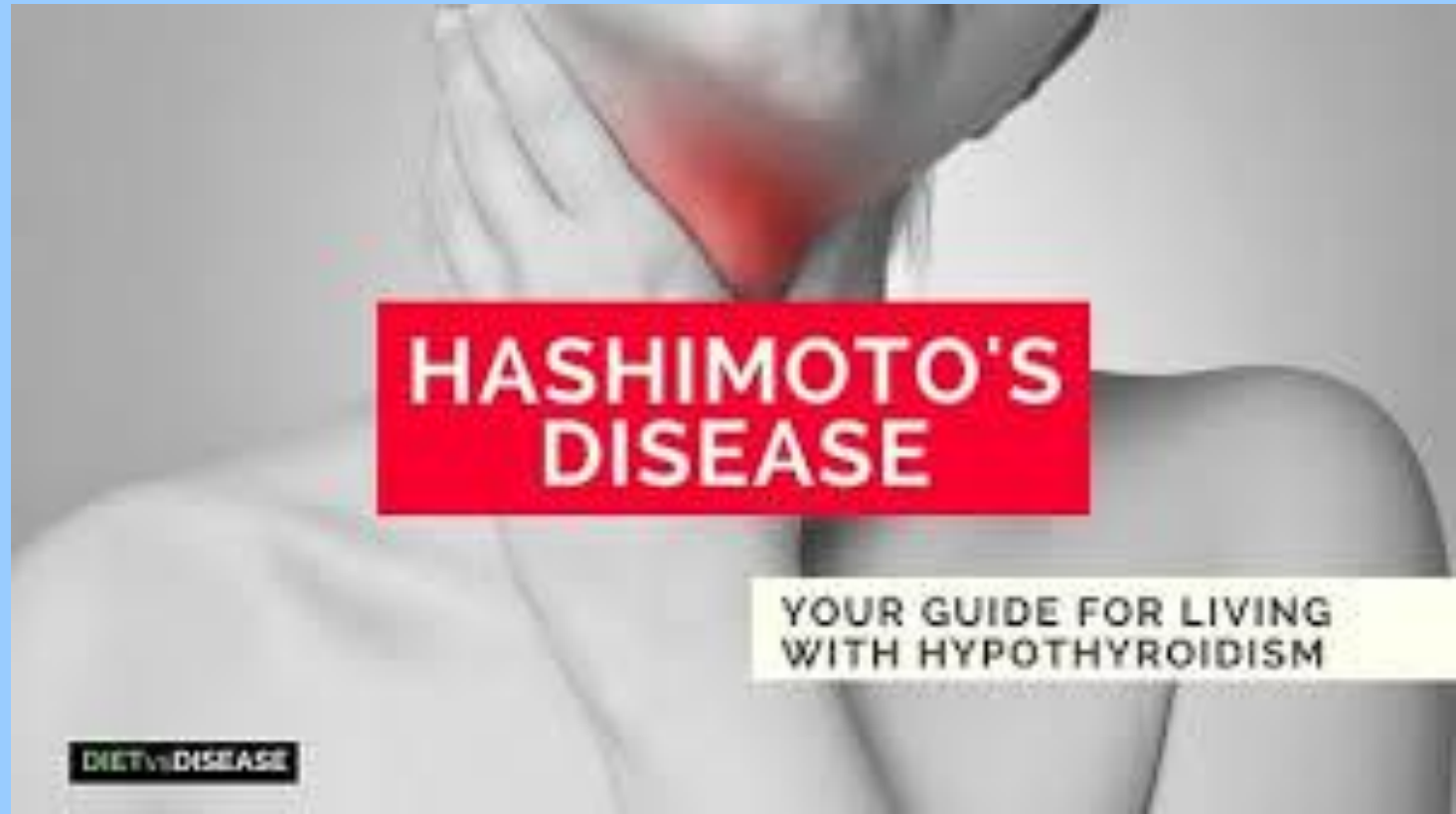
Cretinism

(Congenital hypothyroidism; since birth)



Hashimoto's disease

An autoimmune disease leads to hypothyroidism



Management of Hypothyroidism

levothyroxine (Synthroid or Levothroid)



Nursing care for the patient with hypothyroidism depends on:
patient's problems.

The list of care plan can be found on
Williams & Hopper(2015) page 896-
897

Hyperthyroidism

*** Primary, Secondary, Tertiary

Causes:

- *Autoimmune disease
- *Tumor of thyroid gland
- *Radiation

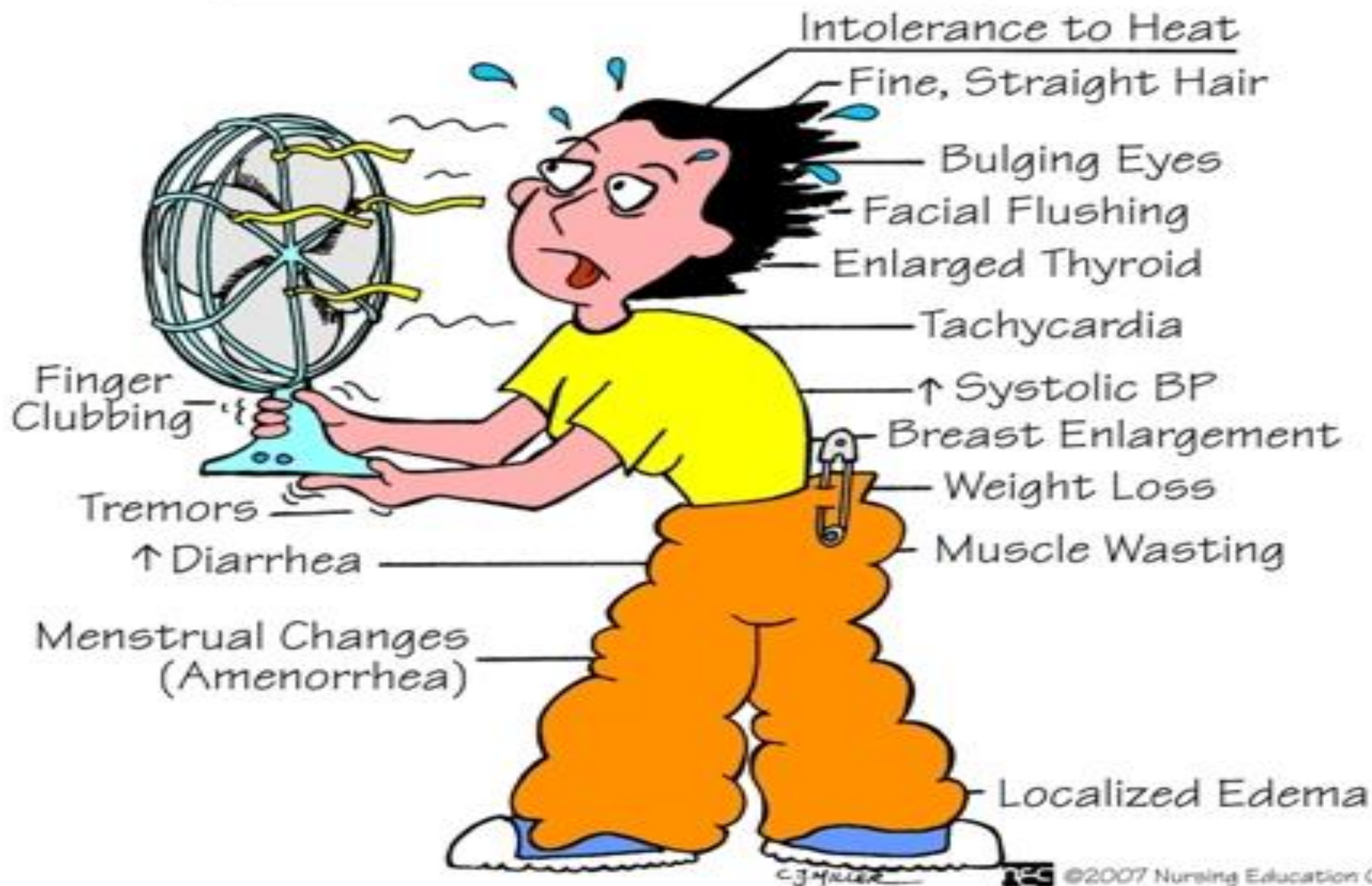
Me again!

Can you tell
me what are
the S&S of

hyperthyroidism?



HYPERTHYROIDISM





Exophthalmos

Thyrotoxic crisis (Thyrotoxicosis)

Sever hyperthyroidism

Graves' disease

An autoimmune disease leads to hyperthyroidism

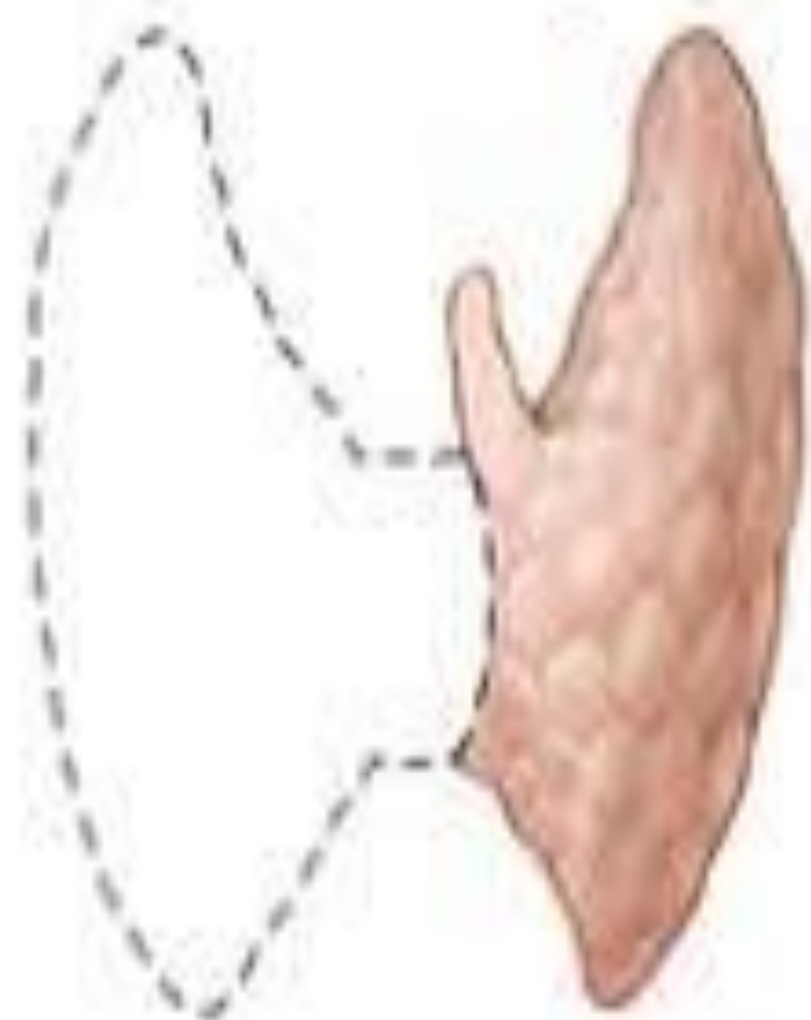


Management of Hyperthyroidism:

- *Antithyroid agents
- *Radioactive iodine
- *Surgery



Thyroid
lobectomy



Subtotal
thyroidectomy



Total
thyroidectomy



If a female takes radioactive iodine, pregnancy should be postponed for at least 6 months after treatment.



Nursing care for patient before and after thyroidectomy

See page 902-903 in Williams & Hopper(2015)

Preoperative Care:

- *euthyroid

- *voice quality

- *routine preoperative care

Postoperative Care:

- *monitor signs of respiratory distress
- *dressing
- *detect hoarseness (if present, may indicate trauma to the laryngeal nerve)
- *monitor bleeding
- *monitor serum calcium
- *watch if tetany occurs

Parathyroid glands



Parathormone (Parathyroid hormone):

Calcium and phosphorus regulator.

As calcium levels fall,
phosphate levels rise.

Calcium (8.5-10.2 mg/dl)

Phosphorus (2.5-4.5 mg/dl)



Hypoparathyroidism

Pathophysiology

Etiology

S&S of Hypoparathyroidism

Hypocalcemia

tetany

numbness and tingling, muscle spasms,
and twitching.

Positive Chvostek's */chv:us:tek/* and
Trousseau's */tru:so/* signs

Chvostek's and Trousseau's signs

<https://www.youtube.com/watch?v=kvmwsTU0InQ>

<https://www.youtube.com/watch?v=SBuquydjZDc>

Diagnostic Tests:

Decreased serum calcium and PTH levels and increased serum phosphorus.

Medical treatment:

Oral or IV calcium

Calcium and Vit D

Are they related?



Hyperparathyroidism

Pathophysiology

Etiology

S&S of Hyperparathyroidism

Mostly asymptomatic.

However>>>

An anatomical illustration of a woman's torso and head. The brain, neck, and arm bones are highlighted in a reddish-brown color. The internal organs, including the stomach, liver, and intestines, are shown in a similar reddish-brown color. The muscles of the back and leg are highlighted in a darker, more saturated red. Lines connect these highlighted areas to text boxes describing various health problems.

Nervous System Problems

- fatigue
- depression
- irritability
- worsening short term memory
- worsening concentration
- "brain fog"

Bone and Joint Problems

- weakening of the bones
- joint and bone pain

Kidney Problems

- kidney stones
- urinating more frequently
- kidney disease

Muscle Problems

- weakness
- muscle aches

Digestive Problems

- abdominal pain
- nausea
- vomiting
- constipation
- ulcers
- pancreatitis

Medical treatment:

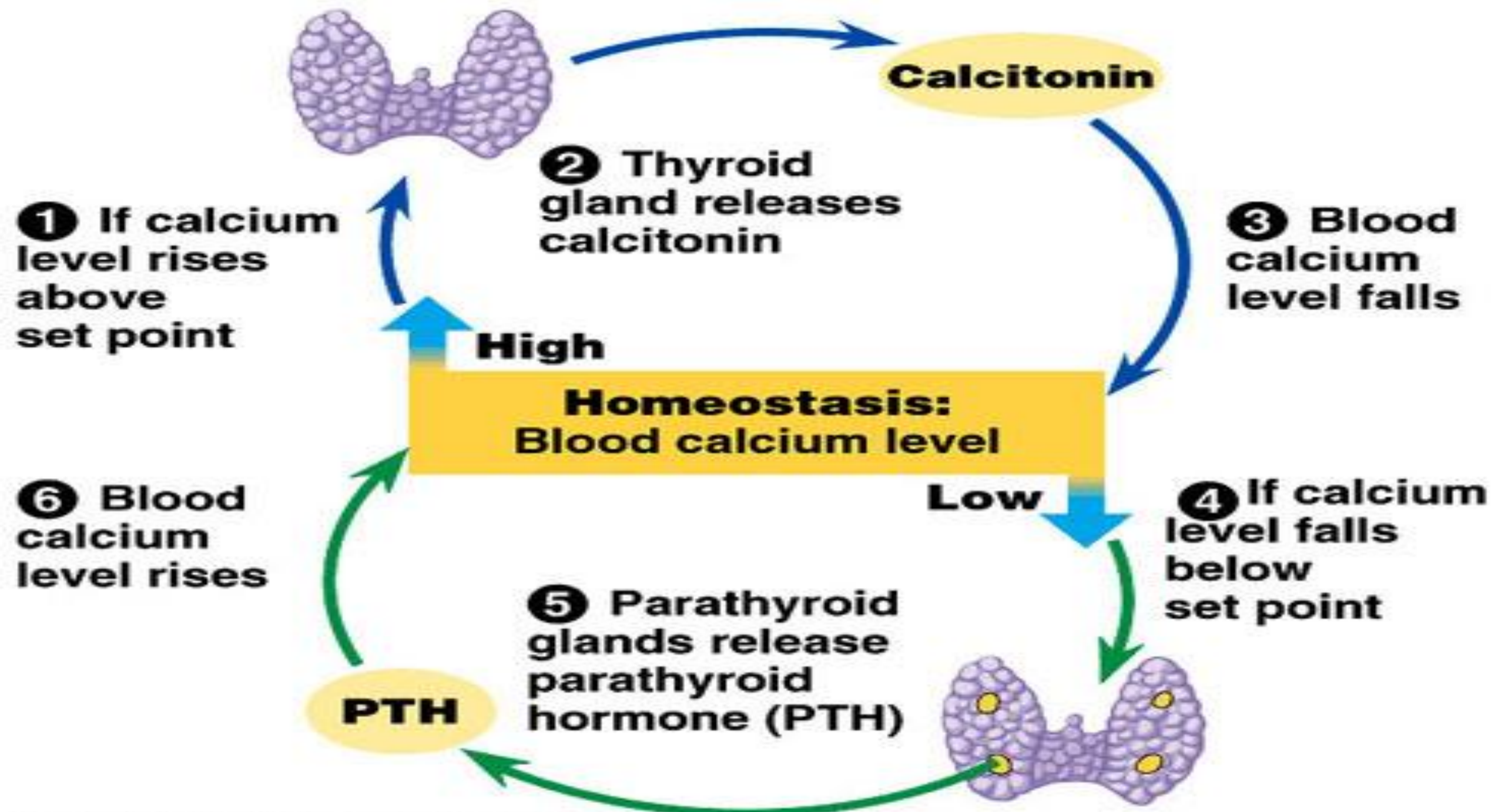
Furosemide (Lasix): to increase renal excretion of calcium.

IV normal saline

Calcitonin

Calcitonin





Is the patient with
hyperparathyroidism risky to bone
fracture?



Can bone calcification occur in a patient with hypoparathyroidism?



Please **email** me if you have
any questions:

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References

Williams, L. S., & Hopper, P. D. (2015).
Understanding medical surgical nursing. FA
Davis. [Chapter 36, Page 894-906]

2- Smeltzer, S., Bare, B., Hinkle, J., & Cheever, K.
(2010). Textbook of medical surgical nursing
Brunner and suddarth. China.: Lippinicot
Williams and Wilkins. [Chapter 42, Page 1253-
1268]

Does constipation occur with hyperthyroidism or hypothyroidism? Why does it occur? What is the care plan should be done for this patient?



Does diarrhea occur with hyperthyroidism or hypothyroidism? Why does it occur? What is the care plan should be done for this patient?

