# HYPERTHYROIDISM

[DEPTH OF BIOLOGY]

- Excess/ over production of thyroid hormone; this condition is also called ***THYROTOXICOSIS***
- Hypothalamus ( located at base of brain)

[DEPTH OF BIOLOGY]

- Detects low blood level of thyroid hormon
- If low level is detected then **release** THYROTROPIN RELEASING HORMONE

[DEPTH OF BIOLOGY]

Anterior pitutiary **secrete** **THYROTROPIN / TSH**

- Stimulate *thyroid gland* (located in the neck)

[DEPTH OF BIOLOGY]

made up of 1000 of follicles which in turn are small spheres lined with *follicular cells*

**Convert THRYOGLOBULIN (a protein found in follicle)**

[DEPTH OF BIOLOGY]

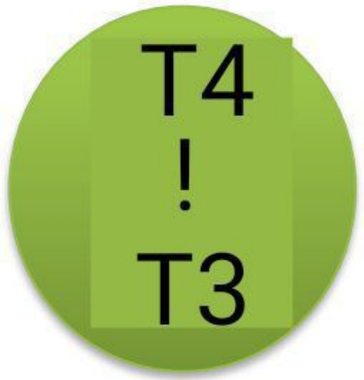
Iodine containing hormone

- **TRIIODOTHYRONINE (T3)**
- **THYROXINE (T4)**

- Once released from thyroid gland these hormones enter the blood stream & bind to the circulating plasma protein, only a small level of **(T3) &** (T**4)** travel unbound in the blood [DEPTH OF BIOLOGY]

# DEPTH OF BIOLOGY

- These 2 hormone can be picked by every cell in the body
- Once inside the cell




[DEPTH OF BIOLOGY]
ENZYME
5' DEIODINASE

**(T3)** speeds up B.M.R. means cell produce more protein and burn more energy

- Increase the cardiac output
- Stimulate bone reabsorption
- Activate sympathetic nervous system (F.F.F)response

[DEPTH OF BIOLOGY]

# CAUSES

[DEPTH OF BIOLOGY]

## 1. GRAVE'S DISEASE-

- *(autoimmune disorder)*; B-cells produce antibodies against thyroid protein
- This antibodies include thyroid stimulating immunoglobins which binds to TSH receptor on the follicular cell & initiate TSH
- This results in growth of THYROID GLAND & stimulate follicular cell to produce excess thyroid hormone

## 2. TOXIC NODULAR GOITRE-

Follicle start generating lots of thyroid hormone; in some cases it is because of ***mutated TSH receptor.*** [DEPTH OF BIOLOGY]

## 3. HYPER- FUNCTIONING THYROID ADONEMA-

Follicular cells start growing uncontrollably forming benign tumour making excess thyroid hormone. [DEPTH OF BIOLOGY]

## 4. THYROID INFLAMMATION/ DAMAGE-

This lead to large release of pre-formed thyroid hormone. [DEPTH OF BIOLOGY]

## 5. JOD- BASEDOW SYNDROME-

Develops after iodine deficient person gets hefty dose of iodine. [DEPTH OF BIOLOGY]

## 6.NEONATAL HYPERTHYROIDISM-

In newborn (whose mother have grave's disease i.e thyroxin level increase)


thyroxin transfer through placenta

[DEPTH OF BIOLOGY]

# DEPTH OF BIOLOGY

# SECONDARY CAUSES OF HYPERTHYROIDSM

[DEPTH OF BIOLOGY]

- Here healthy thyroid (that generates a lot of thyroid hormone).
- In response to aTCH secreting tumour in the anterior pituitary.

[DEPTH OF BIOLOGY]

# SYMPTOMS

[DEPTH OF BIOLOGY]

1. ***WEIGHT LOSS-*** despite ↑ in apetite **[↑ B.M.R.]**
2. **HEAT INTOLERANCE-** because body produce more heat
3. **RAPID HEART RATE**
4. **SWEATING**
5. **HYPERACTIVITY**
6. **ANXIETY** [DEPTH OF BIOLOGY]
7. **INSOMNIA**
8. Overstimulation of muscle that control eye movement i.e. *eye appear more open than normal*

[DEPTH OF BIOLOGY]

# DEPTH OF BIOLOGY

**9.** <u>If hypertension incerase for long time</u>= risk of C.H. Failure & osteoporesis



**10. THYROID STORM-** life threating complication

***#DIAGNOSIS-***

1. Measuring blood levels of TSH T3 & T4.
2. Radioactive iodine uptake test.

[DEPTH OF BIOLOGY]

# TREATMENT

1. Beta blocker ( to treat immediate symptoms)
2. Anti thyroid drug- block thyroid hormone production release [DEPTH OF BIOLOGY]
3. Radioiodine therapy
4. Thyroid removed via surgery ( few cases)

[DEPTH OF BIOLOGY]