



Indian Society for Pediatric & Adolescent Endocrinology

Thyroid School Module

**....Solving the puzzle of
Thyroid problems In Children**



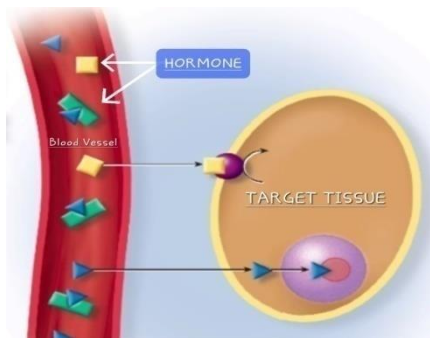
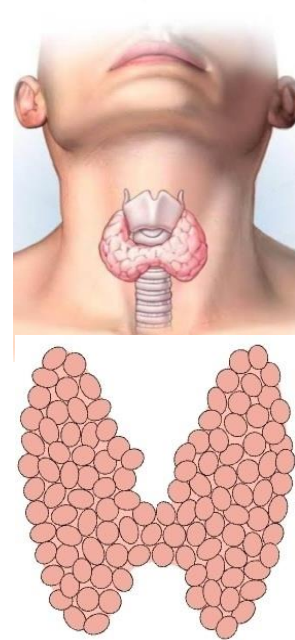
*This educational material is prepared
for*
**the Indian Society for Pediatric and
Adolescent Endocrinology (ISPAE)**

by

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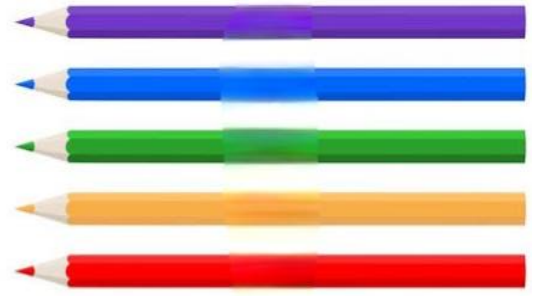
What is thyroid gland?

Thyroid gland is a butterfly or a bow tie shaped gland (one lobe on either side joined by a band of tissue) located in front of the neck



THYROID GLAND makes the **THYROID HORMONE** which is released into the blood and carried to every tissue in the body, serves like battery power

“Thyroid” name why?



THYREOS is a Greek word which means SHIELD

The shape of the gland resembles a type of ancient Greek shield

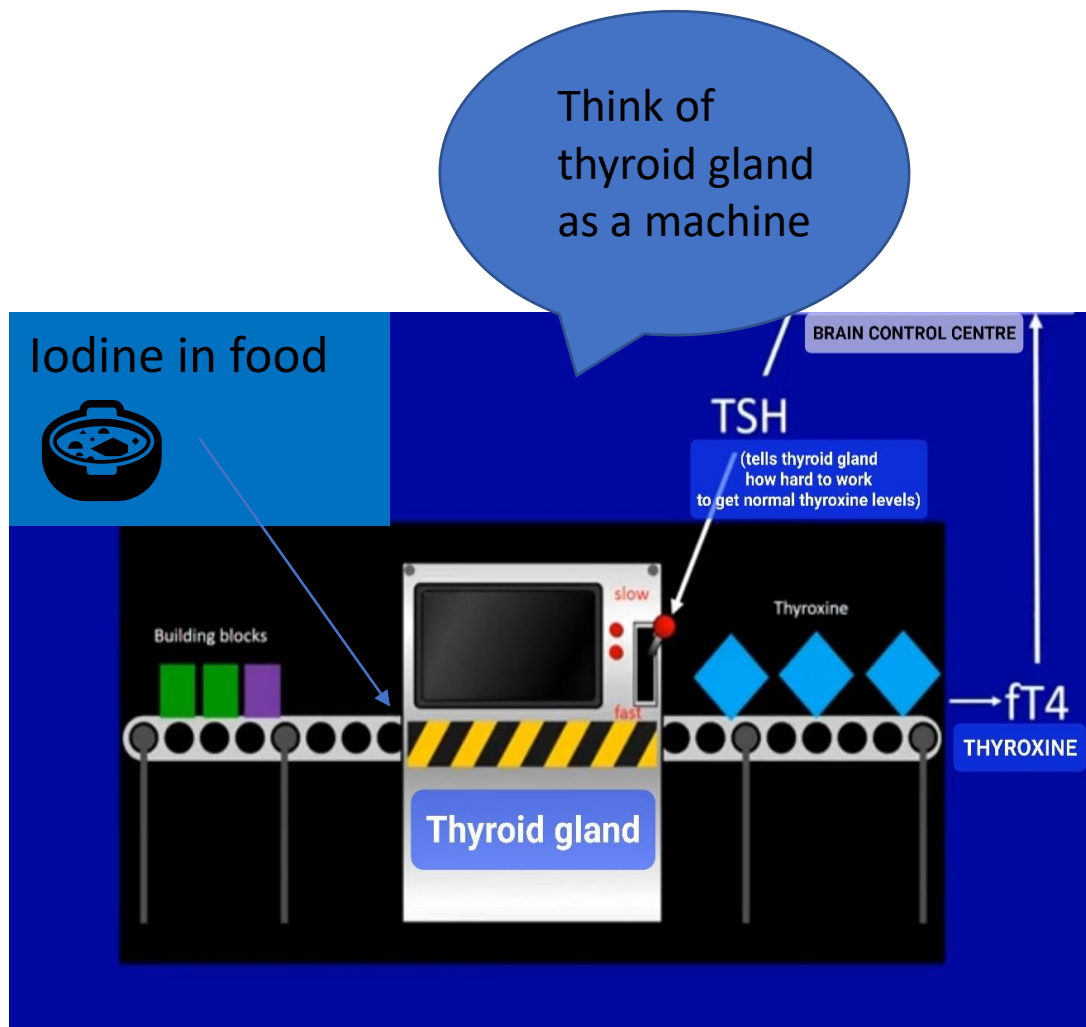
The weight of the thyroid is around 5 new pencils (25-30 grams)

How thyroid hormone is produced?

Iodine in the food is taken via blood to the thyroid gland



The gland takes up the iodine and produces Thyroid Hormone and releases into blood



Foods rich in iodine



Common salt



Milk and milk products



Beans



Berries



Nuts



Fish



Shell fish



Spinach



Broccoli

Why thyroid hormone is important?

Essential for:

- Normal growth & Puberty (Physical & Mental)

• Regulation of

Brain growth



Heart rate



Body temperature



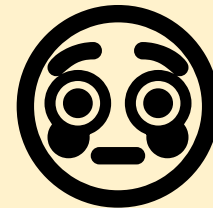
What is?

Hypothyroidism?



- Lack of Thyroxine
- Low production

Hyperthyroidism?



- Excess of Thyroxine
- Very High production

What are the types of hypothyroidism?

Congenital hypothyroidism

- Seen at birth



Caused by:

- Absent thyroid gland
- Defective thyroid gland
- Mother having Iodine deficiency

Acquired hypothyroidism

- Develops during childhood

Caused by:

- Iodine deficiency
- Autoimmune disorder



Who Can Develop Hypothyroidism?

- Hypothyroidism is one of the most common thyroid diseases
- It affects people all over the world of every age, sex, race, economical and educational status



Most of the times symptoms of hypothyroidism are not easily recognized by parents or even by busy doctors



About 1 in 1200 live born babies have congenital hypothyroidism at birth
But may look normal



How does congenital hypothyroidism present in a baby/child?

Hoarse Cry

Puffy face

Dry skin

Poor feeding and weight gain

Excessive sleepiness

Dry skin and Cold intolerance

A large tongue

Delayed growth and development

Prolonged jaundice

How does acquired hypothyroidism present?



Neck swelling



Feeling cold



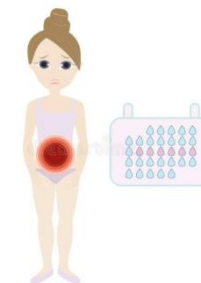
Feeling tired/
Poor concentration
and memory



Puffy face
Weight gain



Constipation



Irregular menstrual cycles



Dry skin and brittle hair



Poor height gain, growth
Delayed puberty

What is Newborn screening?

When is screening done?

- 2-3 days after birth for all newborn babies
- May also be done from Umbilical cord blood



How is newborn screening done?

- Blood from baby's heel is placed on a filter paper
- In a lab TSH is measured from blood spot
- If TSH is high, result confirmed

Why is Newborn screening important?

Newborn screening

If Normal

HOORAY!

Child with normal development and growth



If Abnormal

Congenital hypothyroidism

Diagnosed and treated at birth

Regular treatment

Why is Newborn screening important?

If NBS is not Done and baby happens to be affected



Diagnosis of congenital hypothyroidism is late



RESULT
Permanent delayed development!!!
Not easy to treat at all!!!



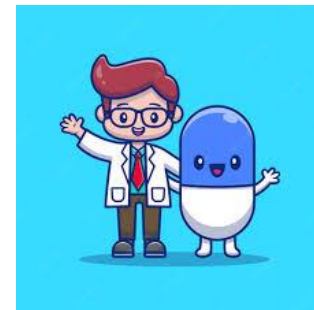
Why is Newborn screening important?



- **Cheap**
- **Easy to carry out**
- **Effective**

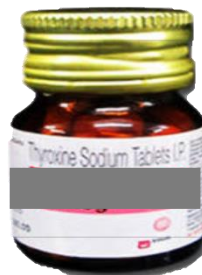
How is hypothyroidism treated?

Thyroxine Tablet needs to be taken as advised by the doctor



HOW IS THYROXINE TAKEN?

- Minimum half hour before food on an empty stomach



- Avoid taking along with supplements like calcium, iron, zinc and soy products



How long should replacement be taken?

- On a long term, often life long

✨ ✨ Normal functioning of the body is restored by 3 months of starting thyroxine

If Regular Replacement taken
Normal happy children!!!



What if treatment is not taken?

- If the treatment is not started or taken irregular the gland may enlarge with time.
- There is an increased risk of low IQ
- Short height
- Delayed puberty



Treatment should be continued in the right dose and for the given duration as advised by physician



Myths buster!

Know your facts!

MYTHS

- Certain vegetables are avoided



- Cannot Live a normal life
- Many treatment options available ?

FACTS

- NO DIETARY RESTRICTIONS
Can eat after cooking
- Absolutely wrong!!!
 - Normal life, higher education
 - can marry & have children like any other normal person
- Regular thyroid replacement is the ONLY option



Role of school in children with thyroid disorder?

- During Regular growth monitoring (Height, weight, puberty status) any deviation should be attended to promptly and brought to notice of parents to seek the advice of a Pediatrician.



**Thank
you...**

