

These lectures are very similar to the ones presented in Histology. I am not rewriting her notes, only adding to them and trying to highlight what I thought she stressed in class.

The NET EFFECT of the hypothalamic-pituitary-target organ axis is HOMEOSTASIS

Example:

Hypothalamus

Release hormone A to

Anterior Pituitary

Release hormone B to

Target cells..which release..for example T3, T4....

T3 and T4 then have negative feedback mechanism to anterior pituitary with questionable negative feedback up to the hypothalamus

The **anterior pituitary (adenohypophysis)** is made up of:

- pars distalis
- pars intermedia (which is not in humans)
- pars tuberalis

<u>Anterior Pituitary</u>	<u>Control</u>
ACTH	CRH
TSH	TRH
LH,FSH	GnRH (LHRF)
GH	GHRH, somatostatin
Prolactin	TRH, PIF (dopamine)

Remember the mnemonic, FLAT PIG for anterior pituitary....FSH, LH, ACTH, TSH, Prolactin, GH  
Basophilic is FLAT  
Acidophilic is PIG

**Posterior pituitary (neurohypophysis)**

Remember the mnemonic...NOVA—Neurohypophysis secretes Oxytocin, Vasopressin (ADH)

## **Thyroid Stimulating Hormone**

TSH is highest in the morning and is increased by

TRH which is made in the hypothalamus

TRH is the SMALLEST PEPTIDE HORMONE...3 aa peptide

The **gonadotropins** LH and FSH are made in the same pituitary cell

These two can be distinguished by RIA

LH and HCG bind to the same receptor

One thing that she mentioned about the pathophysiology was the fact that with early puberty, a person is shorter in stature (compared to late puberty) because estrogen fuses to the epiphyseal plates of the bones

**ACTH** and the sleep cycle

ACTH peaks before waking, cortisol peaks upon waking

ACTH hypersecretion leads to hyperpigmentation because the atrophy of the adrenal gland (due to no longer having feedback control by cortisol), the POMC also results in MSH (melanocyte stimulating hormone) and leads to hyperpigmentation

**Prolactin** levels rise with sleep

## **GH: Growth Hormone**

Increases protein, muscle mass, linear bone growth and blood glucose

Decreases fat deposits

## **Sleep and GH**

In kids, pulsatile pattern of GH—important for growth

Growth hormone deficiency—if give GH, it must be given before puberty to work