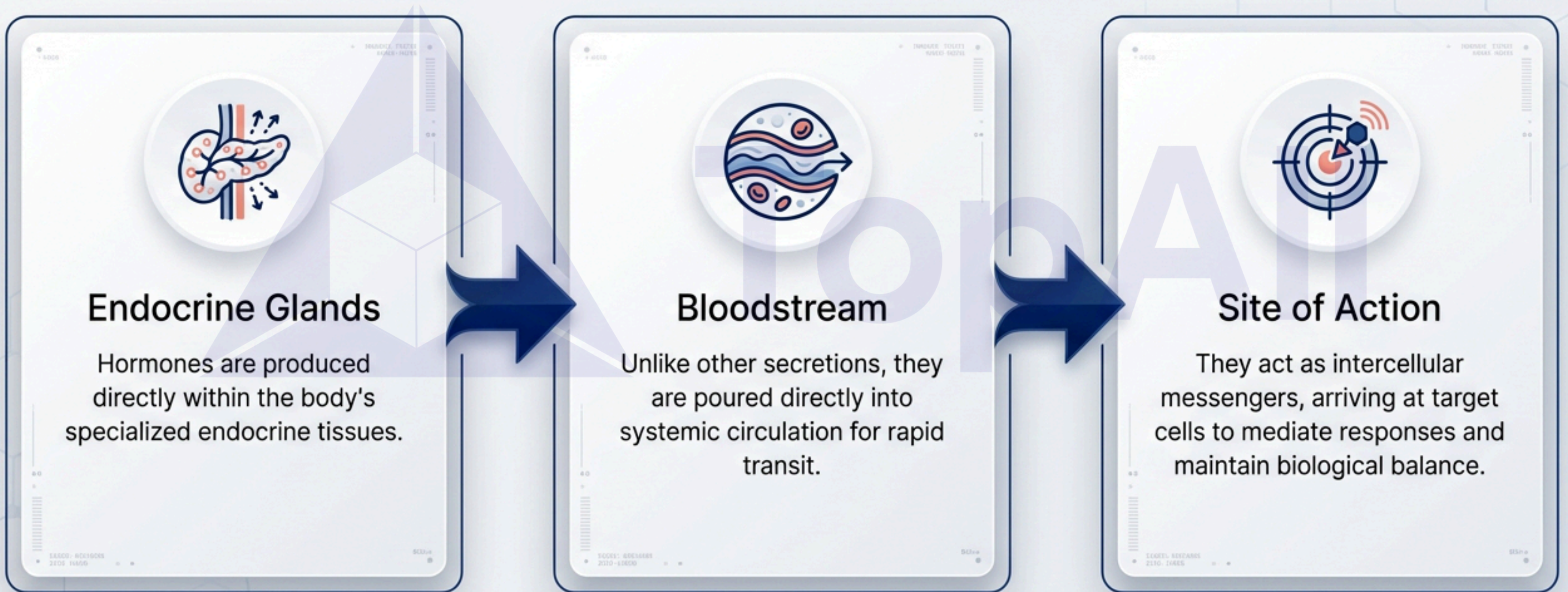


CHAPTER 10 | BIOMOLECULES

10.6 Hormones

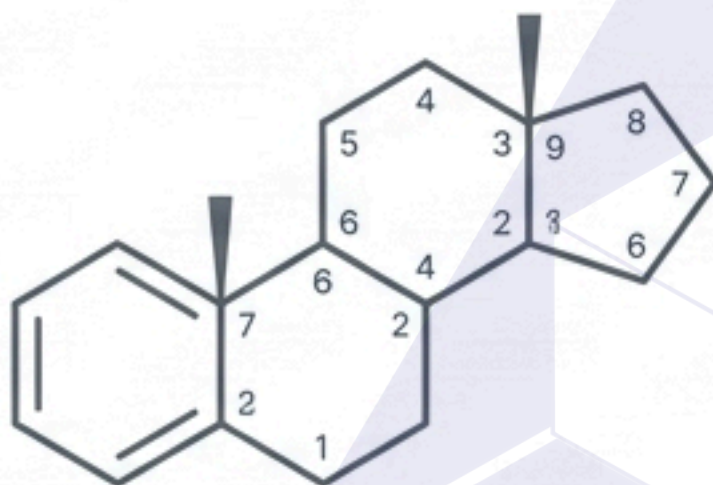
The Chemical Messengers of the Biosystem.

Hormones as Intercellular Messengers



Chemical Nature of Hormones

Steroids

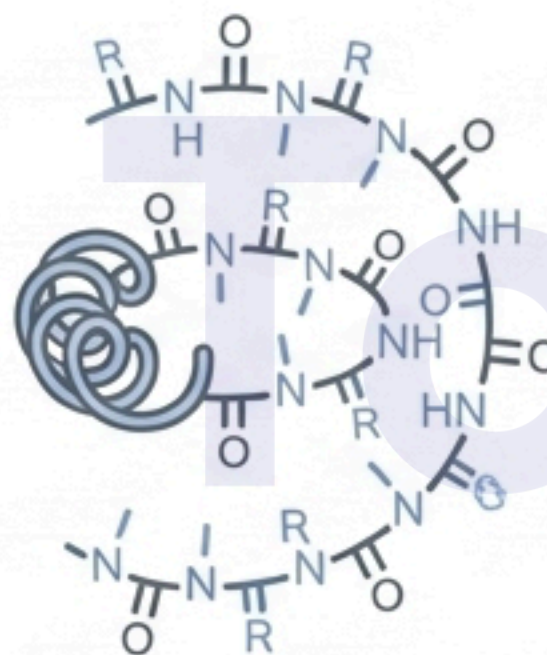


Cyclopentanoperhydrophenanthrene skeleton

Estrogens

Androgens

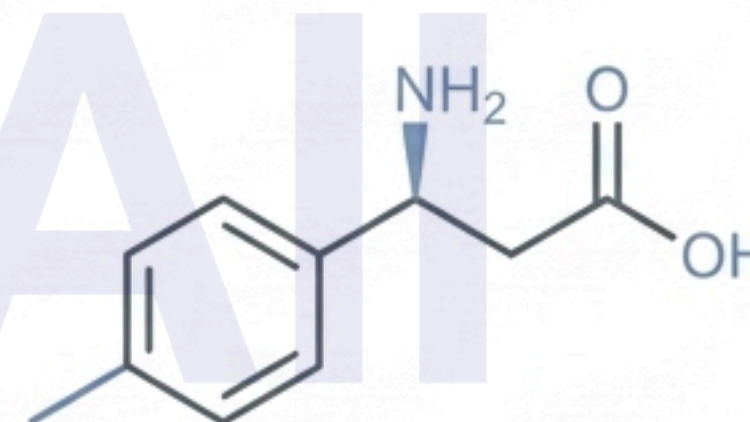
Polypeptides



Insulin

Endorphins

Amino Acid Derivatives



Epinephrine

Norepinephrine

Note: Epinephrine and norepinephrine specifically mediate physiological responses to external stimuli.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



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Practice Now



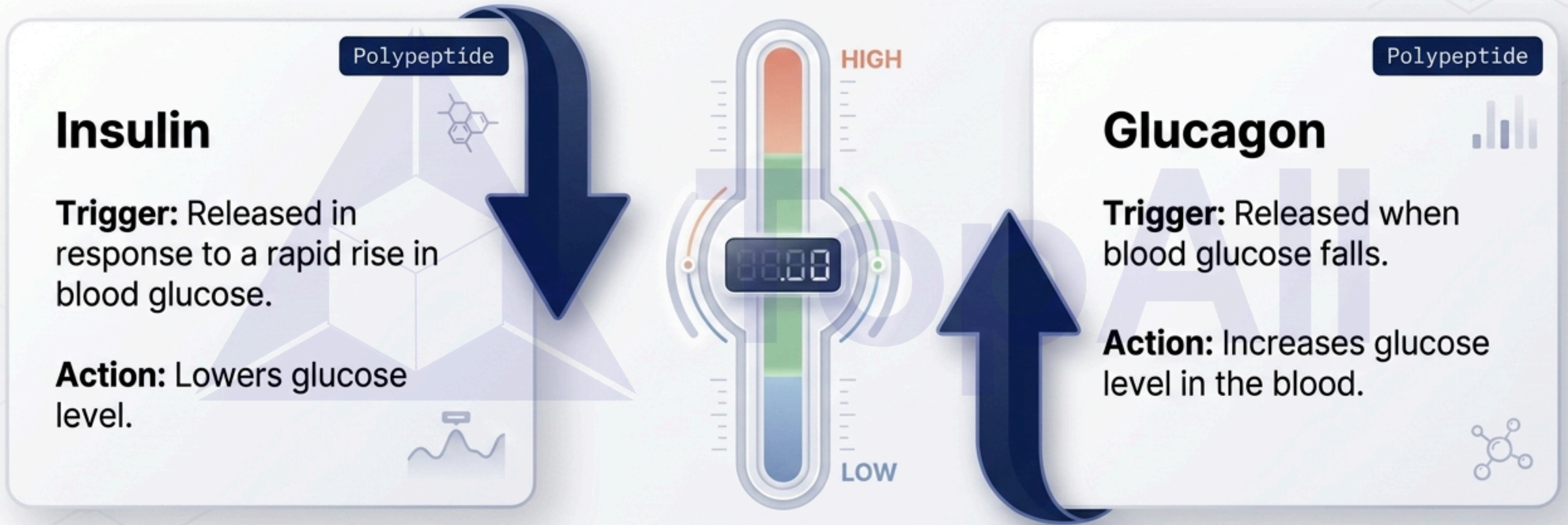
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- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter



Blood Glucose Control



Homeostasis Loop: These two hormones act together to strictly regulate the glucose level in the blood within a narrow, life-sustaining limit.

PHYSIOLOGICAL REGULATION

Thyroxine & Thyroid Disorders

Thyroxine

Produced in the thyroid gland. It is an iodinated derivative of the amino acid tyrosine.

Hypothyroidism (Deficiency)

Cause: Low level of iodine in the diet.

Symptoms: Letharginess, obesity, and physical enlargement of the thyroid gland.

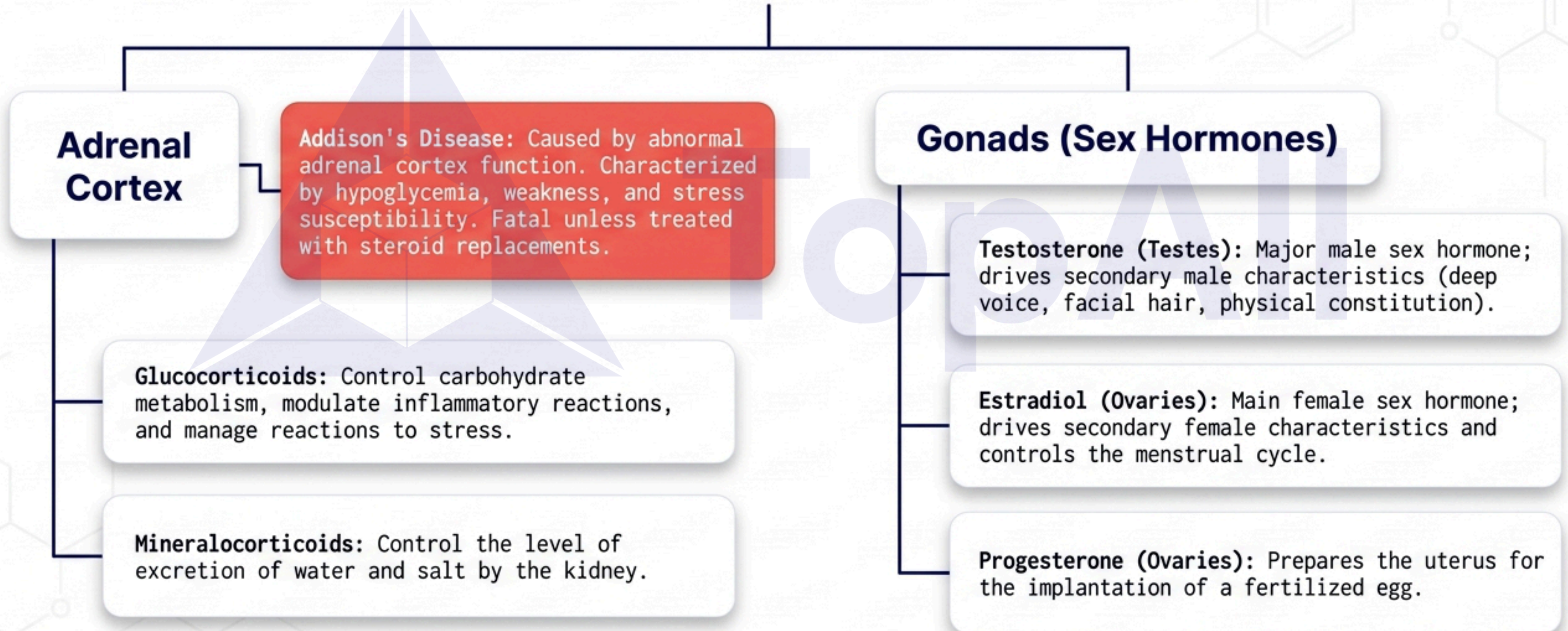
Hyperthyroidism (Excess)

Cause: Abnormally increased levels of circulating thyroxine.

Public Health Intervention

The addition of sodium iodide to commercial table salt ('iodised salt') effectively controls endemic iodine deficiency.

Major Steroid Hormones



Hormones Maintain Biological Balance

Homeostasis Matrix

Metabolic Balance	Insulin & Glucagon (Glucose), Glucocorticoids (Carbohydrates).
Developmental Balance	Testosterone, Estradiol (Secondary sex characteristics & growth).
Physiological Balance	Thyroxine (Energy/weight), Mineralocorticoids (Water/salt excretion).
Response Balance	Epinephrine & Norepinephrine (External stimuli), Glucocorticoids (Stress/inflammation).

Final Insight Panel: “Hormones are the intercellular messengers that provide the chemical logic for biological homeostasis.”



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