

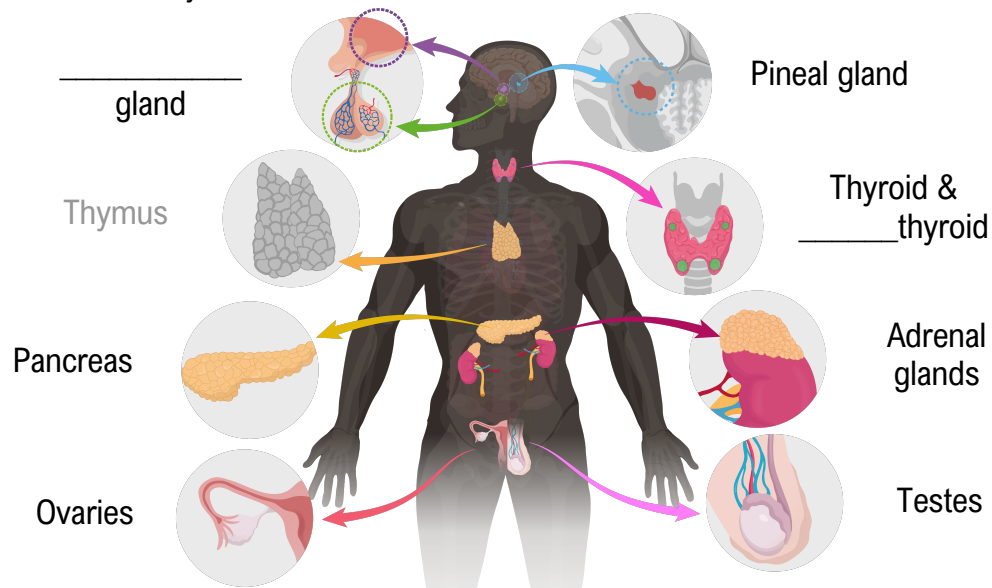
## CONCEPT: OVERVIEW OF THE ENDOCRINE SYSTEM

### Components of the Endocrine System

◆ **Endocrine System:** Collection of glands that secrete *hormones* \_\_\_\_\_ into the bloodstream.

▪ **Hormone:** \_\_\_\_\_ substance transferred through blood to a target tissue/organ.

◆ Endocrine glands of the body:



### **EXAMPLE**

Which of the following is not a true statement?

- a) Human body has 2 adrenal glands, one on top of each kidney.
- b) Hormones are released by one organ and act on another near or distant organ.
- c) Endocrine glands are ductless because they secrete directly into the bloodstream.
- d) Pituitary gland in the hypothalamus controls involuntary movements of the body.

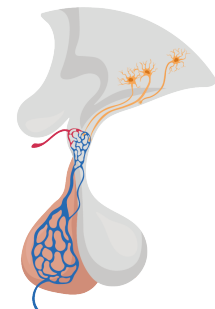
## CONCEPT: OVERVIEW OF THE ENDOCRINE SYSTEM

### Pituitary Gland

◆ **Master Gland:** Releases hormones to \_\_\_\_\_ other endocrine glands.

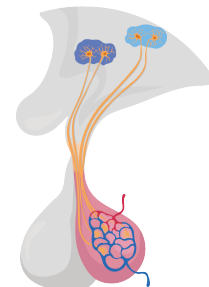
- Divided into **anterior** & **posterior** lobes.
- Directly connected to & controlled by hypothalamus.

| Anterior Pituitary                          |                               |   |
|---|-------------------------------|---|
| Hormone                                     | Target Tissue/Organ           | Function  |
| <b>F</b> ollicle-Stimulating Hormone (FSH)  | Gonads (Ovaries & Testes)     | <ul style="list-style-type: none"><li>▸ _____ Development.</li><li>▸ Sperm formation.</li></ul> |
| <b>L</b> uteinizing Hormone (LH)            | Gonads (Ovaries & Testes)     | <ul style="list-style-type: none"><li>▸ Stimulates _____ hormone secretion.</li></ul>           |
| <b>A</b> drenocorticotrophic Hormone (ACTH) | Adrenal Cortex                | <ul style="list-style-type: none"><li>▸ Regulates adrenal cortex.</li></ul>                     |
| <b>T</b> hyroid-Stimulating Hormone (TSH)   | Thyroid                       | <ul style="list-style-type: none"><li>▸ Regulates thyroid.</li></ul>                            |
| <b>P</b> rolactin (PRL)                     | Breast                        | <ul style="list-style-type: none"><li>▸ Stimulates _____ production.</li></ul>                  |
| <b>G</b> rowth Hormone (GH)                 | Liver, Bones, Cartilage, etc. | <ul style="list-style-type: none"><li>▸ _____ Cell division.</li></ul>                          |



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| Posterior Pituitary                                    |                         |   |
|--|-------------------------|---|
| Hormone  | Target Tissue/Organ     | Function  |
| <b>O</b> xytocin (OT)                                  | Uterus & Breast         | <ul style="list-style-type: none"><li>▸ _____ contractions.</li><li>▸ Milk secretion.</li></ul>           |
| <b>V</b> asopressin (VP)<br>Antidiuretic Hormone (ADH) | Kidneys & Blood Vessels | <ul style="list-style-type: none"><li>▸ _____ Blood pressure.</li><li>▸ _____ Urine production.</li></ul> |



P O V

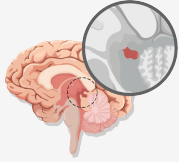
### EXAMPLE

Which of the following statements is incorrect?

- a) Posterior pituitary secretes thyroid-stimulating hormone (TSH) that regulates activity of thyroid gland.
- b) Anterior pituitary secretes growth hormone that stimulates growth by speeding up cell division.
- c) Posterior pituitary secretes vasopressin that causes vasodilation and increases blood pressure.
- d) Anterior pituitary secretes hormones to control the activity of the sex organs (gonads).

## CONCEPT: OVERVIEW OF THE ENDOCRINE SYSTEM

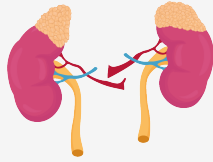
### Major Hormones Overview



**1 Pineal Gland**

**PM Sleep**


|                  |                        |
|------------------|------------------------|
| <b>Melatonin</b> | Regulates _____ cycle. |
|------------------|------------------------|



**4 Adrenal Glands**

**A Gladiator wants More Adrenaline Now**

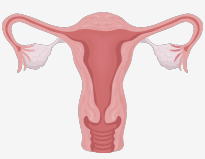
|  |  |
|--|--|
| <b>Glucocorticoids</b>                               | Carbohydrate metabolism.<br>Stress response.     |
| <b>Mineralocorticoids</b>                            | Electrolyte & _____ balance.<br>Stress response. |
| <b>Adrenaline (Epinephrine) &amp; Norepinephrine</b> | Fight-or-flight response.                        |



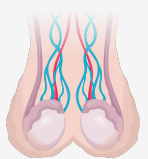
**2 Thyroid & Parathyroid**

**Thyroid**  
**T**irelessly **T**riggers **C**alories


|   |                       |
|---|-----------------------|
| <b>T<sub>4</sub> (Thyroxine) &amp; T<sub>3</sub> (Triiodothyronine)</b> | Major _____ hormones. |
| <b>Calcitonin</b>   | _____ blood calcium.  |
| <b>Parathyroid Hormone</b>  | _____ blood calcium.  |



**5 Gonads (Ovaries & Testes)**



|                                    |                    |
|------------------------------------|--------------------|
| <b>Estrogen &amp; Progesterone</b> | _____ sex hormone. |
| <b>Testosterone</b>                | _____ sex hormone. |



**3 Pancreas**

**Pen In Glue**

|                 |                    |
|-----------------|--------------------|
| <b>Insulin</b>  | _____ blood sugar. |
| <b>Glucagon</b> | _____ blood sugar. |

### EXAMPLE

Identify the hormone released by each of the following organs.

|                   |  |
|-------------------|--|
| 1) Pancreas       |  |
| 2) Ovary          |  |
| 3) Pineal gland   |  |
| 4) Adrenal glands |  |
| 5) Thyroid        |  |

- a) Melatonin
- b) Thyroxine (T<sub>4</sub>)
- c) Glucagon
- d) Calcitonin
- e) Norepinephrine
- f) Progesterone

## **CONCEPT: OVERVIEW OF THE ENDOCRINE SYSTEM**

### **PRACTICE**

Which of the following hormones is not produced by the anterior pituitary?

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- |  |                                       |
|--|---------------------------------------|
| a) Adrenocorticotrophic Hormone (ACTH) | d) Follicle-Stimulating Hormone (FSH) |
| b) Prolactin                           | e) Melatonin                          |
| c) Growth Hormone (GH)                 | f) Thyroid-Stimulating Hormone (TSH)  |

### **PRACTICE**

Which of the following statements is incorrect?

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- a) Pineal gland secretes melatonin which is essential to maintain circadian rhythm.
- b) Anterior pituitary maintains fluid balance by regulating the adrenal glands.
- c) Pancreas regulates blood sugar levels by secreting or absorbing insulin and glucagon.
- d) Thyroid gland secretes  $T_3$  and  $T_4$  which are critical in the regulation of metabolism.