# Endocrine Glands and Hormones: Chart

Anatomy & Physiology · 51 cards

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| QUESTION | ANSWER |
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| **Into which two groups are hormones divided by chemical structure?** | Amino acid-derived and lipid-derived.<br><br>Amines, peptides and proteins come from amino acids; steroids come from lipids. |
| **Which class of hormones is made from cholesterol?** | Steroid hormones.<br><br>Cortisol, aldosterone, testosterone and the estrogens are examples. |
| **Where do lipid-soluble hormones such as steroids and thyroid hormones bind their receptors?** | Inside the target cell.<br><br>The complex then acts on DNA and changes gene transcription. |
| **Where do water-soluble hormones such as peptides bind their receptors?** | On the surface of the target cell.<br><br>They cannot cross the membrane, and usually act through a second messenger such as cAMP. |
| **Which brain structure controls the anterior pituitary with releasing and inhibiting hormones?** | The hypothalamus. |
| **Which two hormones are made in the hypothalamus but stored and released by the posterior pituitary?** | ADH and oxytocin. |
| **What is the main effect of ADH (antidiuretic hormone)?** | It increases water reabsorption by the kidney tubules.<br><br>At high levels it also constricts blood vessels. |
| **What are the main effects of oxytocin?** | Uterine contractions in childbirth and milk ejection from the breast.<br><br>It is also linked to bonding. |
| **What does growth hormone (GH) do?** | It promotes growth and protein synthesis.<br><br>It acts on the liver, bone and muscle, partly through IGFs. |

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| **What does prolactin (PRL) do?** | It promotes milk production in the mammary glands. |
| **Which hormone of the anterior pituitary stimulates the thyroid?** | TSH, thyroid-stimulating hormone.<br><br>It makes the thyroid release T3 and T4. |
| **Which hormone of the anterior pituitary stimulates the adrenal cortex?** | ACTH, adrenocorticotropic hormone.<br><br>It triggers the release of corticosteroids such as cortisol. |
| **What does FSH (follicle-stimulating hormone) do?** | It stimulates gamete production and follicle growth in the gonads. |
| **What does LH (luteinizing hormone) do?** | It triggers ovulation and sex hormone production in the gonads. |
| **Which hypothalamic hormone stimulates the release of TSH?** | TRH, thyrotropin-releasing hormone. |
| **Which hypothalamic hormone stimulates the release of ACTH?** | CRH, corticotropin-releasing hormone. |
| **Which hypothalamic hormone stimulates the release of FSH and LH?** | GnRH, gonadotropin-releasing hormone. |
| **Which hypothalamic hormone inhibits the release of prolactin?** | PIH, which is dopamine. |
| **In what order do the hypothalamus, pituitary and thyroid act to raise T3 and T4?** | Hypothalamus (TRH), then anterior pituitary (TSH), then thyroid (T3 and T4).<br><br>Rising T3 and T4 inhibit TRH and TSH: negative feedback. |
| **In what order do the hypothalamus, pituitary and adrenal cortex act to raise cortisol?** | Hypothalamus (CRH), then anterior pituitary (ACTH), then adrenal cortex (cortisol). |
| **What are the main effects of thyroid hormones (T3 and T4)?** | They raise basal metabolic rate and produce heat.<br><br>They also support growth and nervous system development. |
| **Which dietary mineral does the thyroid need to make T3 and T4?** | Iodine. |
| **Which thyroid cells make calcitonin?** | Parafollicular (C) cells. |

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| **What does calcitonin do?** | It lowers blood calcium, mainly by inhibiting osteoclasts.<br><br>Its role is minor: the parathyroid glands are the main regulators of calcium. |
| **What does parathyroid hormone (PTH) do to blood calcium?** | It raises it.<br><br>It is released when calcium is too low. |
| **How does PTH raise blood calcium in bone and in the kidneys?** | It activates osteoclasts to release calcium from bone, and increases calcium reabsorption in the kidneys.<br><br>The kidneys also make more calcitriol, which raises calcium absorption in the gut. |
| **What happens to blood calcium when the parathyroid glands make too little PTH?** | It falls (hypocalcemia).<br><br>Muscle twitching, cramps and spasms follow. |
| **Blood calcium has risen above normal. Which thyroid hormone is released?** | Calcitonin. |
| **What is the main effect of aldosterone?** | It makes the kidneys retain sodium and excrete potassium.<br><br>This raises blood volume and blood pressure. |
| **What are the main effects of cortisol?** | It raises blood glucose and suppresses inflammation and immune activity.<br><br>It breaks down glycogen, fats and muscle protein. |
| **Which zone of the adrenal cortex makes aldosterone?** | The zona glomerulosa, the outermost zone. |
| **Which zone of the adrenal cortex makes cortisol?** | The zona fasciculata, the middle zone. |
| **Which zone of the adrenal cortex makes androgens such as DHEA?** | The zona reticularis, the innermost zone.<br><br>These androgens supplement gonadal sex hormones. |
| **Which hormones does the adrenal medulla release?** | Epinephrine and norepinephrine.<br><br>Epinephrine makes up about four times more of the output. |

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| **A person faces sudden danger. Which gland releases the hormones of the fight-or-flight response?** | The adrenal medulla.<br><br>Heart rate, blood pressure and blood glucose rise, and the airways dilate. |
| **Which pancreatic hormone lowers blood glucose?** | Insulin, made by beta cells.<br><br>It helps cells take up glucose and promotes glycogen storage in the liver. |
| **Which pancreatic hormone raises blood glucose?** | Glucagon, made by alpha cells.<br><br>It makes the liver break down glycogen and stimulates fat breakdown. |
| **Which pancreatic hormone inhibits the release of both insulin and glucagon?** | Somatostatin, made by delta cells. |
| **Which pineal gland hormone regulates the sleep-wake cycle?** | Melatonin.<br><br>Light lowers its production; darkness raises it and causes drowsiness. |
| **What is the main role of testosterone?** | It drives male reproductive development, sperm maturation and secondary sex characteristics.<br><br>The testes make most of it. |
| **What are the main roles of the estrogens?** | They support female reproductive development, regulate the menstrual cycle and help maintain pregnancy.<br><br>The ovaries make most of them. |
| **What is the main role of progesterone?** | It helps regulate the menstrual cycle and prepares and maintains the body for pregnancy.<br><br>The ovaries and the placenta secrete it. |
| **Which hormone made by the testes and ovarian follicles suppresses FSH?** | Inhibin. |
| **Which hormones from the thymus help T lymphocytes develop?** | Thymosins. |
| **Which hormone from the atria of the heart lowers blood volume and blood pressure?** | ANP, atrial natriuretic peptide.<br><br>It also lowers blood sodium. |

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| **Which kidney hormone stimulates red blood cell production in response to low oxygen?** | Erythropoietin (EPO).<br><br>It acts on the bone marrow. |
| **Which kidney hormone is released when kidney blood flow falls and triggers the RAAS?** | Renin.<br><br>It promotes sodium and water reabsorption. |
| **Which hormone from fat tissue signals satiety to the brain?** | Leptin.<br><br>Its level is proportional to body fat. |
| **Which stomach hormone stimulates the release of hydrochloric acid?** | Gastrin.<br><br>It is released when the stomach is distended. |
| **Which small intestine hormone makes the pancreas release bicarbonate?** | Secretin.<br><br>The bicarbonate buffers acidic chyme. |
| **Which small intestine hormone promotes pancreatic enzyme secretion and bile release from the gallbladder?** | Cholecystokinin (CCK). |