Adrenals and Stress Hormones

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This lecture covers endocrine control of appetite. It covers the following pages in the textbook: 341-344 [1]. [1]

Contents

Learning Objectives

For this lecture, the learning objectives are:

- Name three zones in the adrenal cortex and major regulator(s) of each zone.
- Name three steroidogenesis pathways and their major products.
- Explain briefly the physiological mechanism of adrenogenital syndrome.
- Describe the physiological actions and roles of aldosterone.
- Explain briefly the renin-angiotensin system.
- Describe the negative feedback regulation of aldosterone and its relationship to blood volume/blood pressure homeostasis.
- Describe hepatic and extrahepatic metabolic actions of glucocorticoids. Discuss their relationship.
- State the major findings caused by adrenal hypersecretion of mineralocorticoids.
- State the major findings caused by adrenal hypersecretion of glucocorticoids.
- Name the major hormones secreted from the adrenal medulla. Discuss the differences of epinephrine (epi) and norepinephrine (NE) in cardiovascular actions (physiological levels).
- List the major metabolic actions of catecholamines.
- Contrast the thresholds for actions vs. plasma levels of epi and NE under common conditions, like exercise, and in the disease pheochromocytoma

Anatomy of the Adrenal Gland

Steroid Hormones Secreted from The Adrenal Gland

Aldosterone

The Reinin-Angiotensin system. The kidney is regul

CUSHINGS'S DISEASE IS THE RESULT OF ELEVATED CORTISOL LEVELS, either due to a pituitary tumor which constitutively secretes ACTH, or an adrenal tumor which secretes too much Cortisol.

CONGENITAL ADRENAL HYPERTROPHY results from mutations in the biosynthesis genes involved in the production of steroid hormones.

ADDISON'S DISEASE is due to immune destruction of the adrenal gland, functionally also preventing steroid hormone production.