

Al-Mamoun university collage

Physiology

Medical lab Tech

Second stage

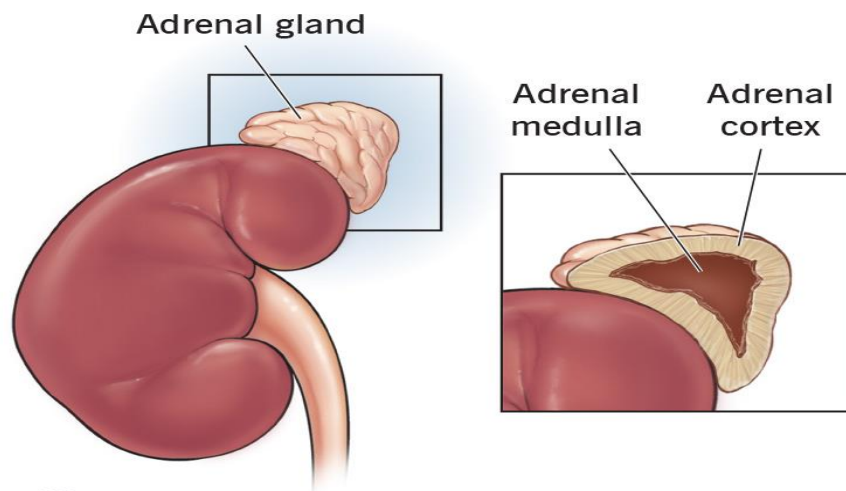
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Lecture 11

Adrenal gland

Adrenal glands, also known as suprarenal glands, are small, triangular-shaped glands located on top of both kidneys. Adrenal glands produce hormones that help regulate your metabolism, immune system, blood pressure, response to stress and other essential functions.

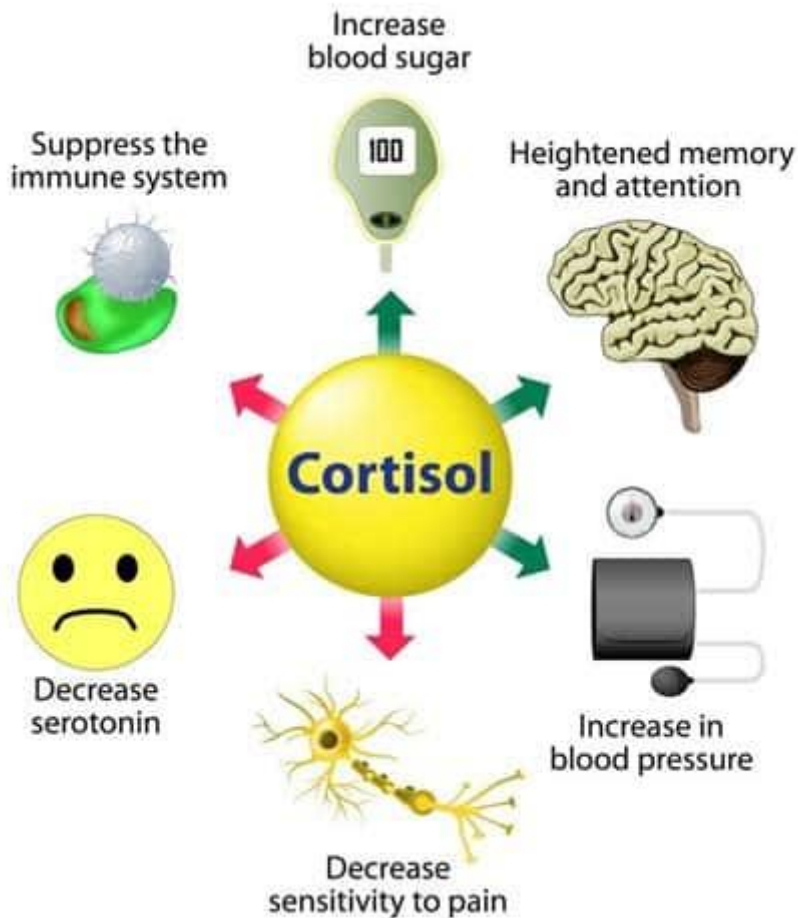


The adrenal, or suprarenal, gland is paired with one gland located near the upper portion of each kidney. Each gland is divided into an outer cortex and an inner medulla. The cortex and medulla of the adrenal gland, like the anterior and posterior lobes of the pituitary, develop from different embryonic tissues and secrete different hormones. The adrenal cortex is essential to life, but the medulla may be removed with no life-threatening effects.

Adrenal glands are responsible for producing and releasing the following essential hormones:

1. **Cortisol**: Cortisol is a glucocorticoid hormone that plays several important roles. It helps control your body's use of fats, proteins and carbohydrates. It also suppresses **inflammation**, regulates your blood pressure and helps control your sleep-wake cycle. Your adrenal glands release cortisol during times of stress to help your body get an energy boost and better handle an emergency situation.
2. **Aldosterone**: Aldosterone is a mineralocorticoid hormone that plays a central role in regulating blood pressure and the levels of sodium and potassium (electrolytes) in your blood. This means aldosterone helps regulate your blood pH (how acidic or basic it is) by controlling the levels of electrolytes in your blood.
3. **DHEA** dehydroepiandrosteron and **androgenic** steroids: These hormones are weak male hormones, meaning they don't have much biologic impact. They are converted into female hormones (estrogens) in the ovaries and into male hormones (androgens) in the testes. Androgens are usually thought of as male hormones, but the female body naturally produces a small number of androgens too.
4. Adrenaline (**epinephrine**) and noradrenaline (**norepinephrine**): These hormones are known as the "fight or flight" hormones and are called catecholamines. Adrenaline and noradrenaline are capable of increasing your **heart rate** and force of heart contractions, increasing blood flow to your muscles and brain and assisting in glucose metabolism. They also control the

squeezing of your blood vessels (vasoconstriction), which helps maintain blood pressure. Your adrenal glands often



cortisone

Cortisone is a steroid medicine that is used to reduce inflammation caused by many different conditions such as allergic disorders, skin conditions, ulcerative colitis, arthritis, lupus, and breathing problems.

Common side effects of cortisone may include:

- 1. high blood pressure;**
- 2. muscle pain or weakness;**
- 3. sleep problems (insomnia), mood changes;**
- 4. thinning skin, bruising or discoloration;**
- 5. increased sweating;**
- 6. headache, dizziness, spinning sensation;**
- 7. stomach pain**
- 8. slow wound healing.**