

Estimation of ACTH and Cortisol

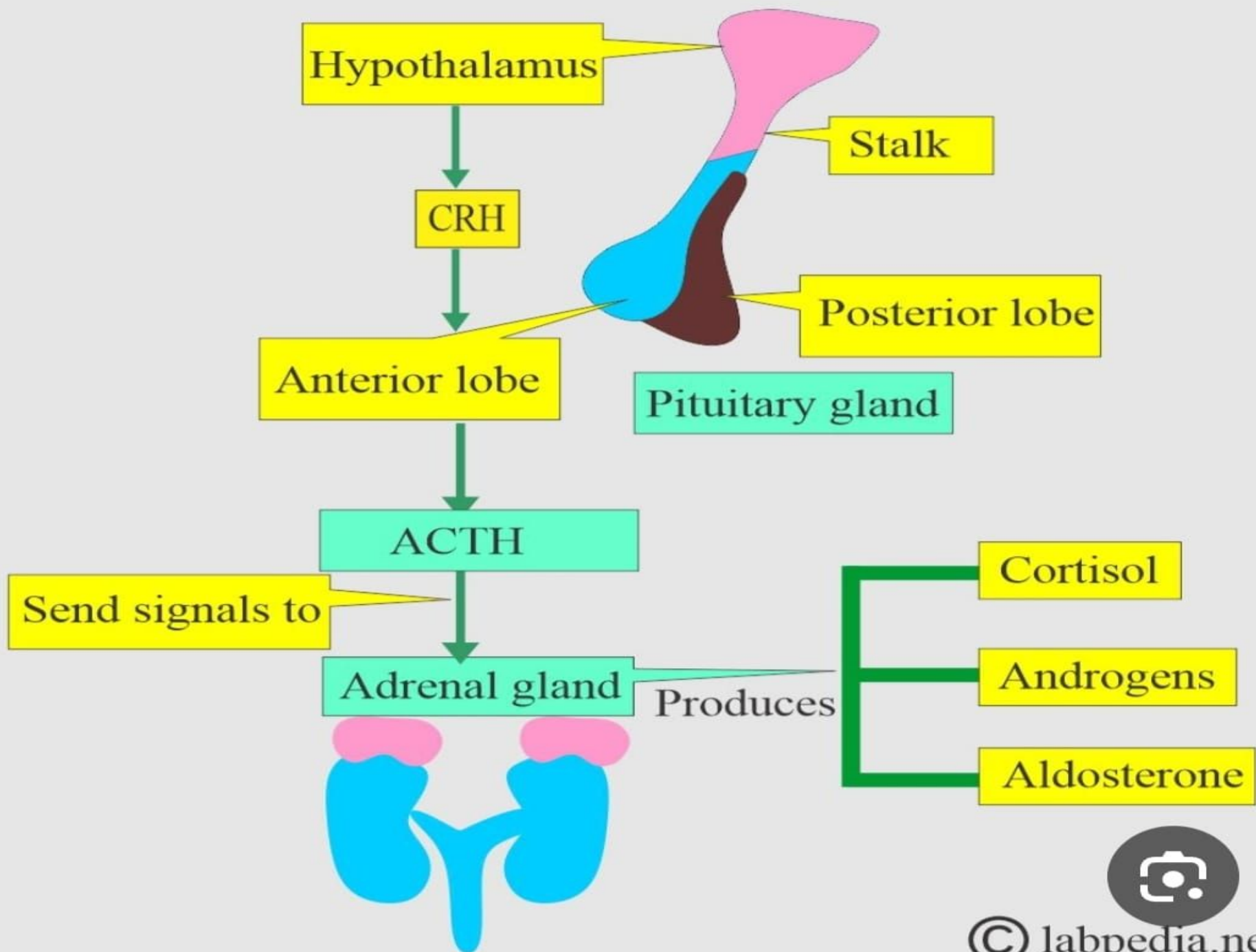
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Lab -8- Clinical endocrinology

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Adrenocorticotrophic Hormone (ACTH)

Adrenocorticotrophic hormone (ACTH) is a hormone pituitary gland(anterior lobe) releases that plays a large role in how the body responds to stress. The release of ACTH triggers adrenal glands to produce cortisol, the “stress hormone,” and androgens (a group of .sex hormones)



?What is the function of adrenocorticotrophic hormone (ACTH)

The main function of adrenocorticotrophic hormone is to stimulate-
.the adrenal glands **to release cortisol**

ACTH also plays a role in stimulating adrenal glands to release-
androgens (sex hormones) and stimulating the production of
chemical substances that stimulate an increase in other hormones
.such as adrenaline and noradrenaline

?What are normal ACTH levels

Like cortisol, the level of ACTH in blood normally peaks in the early morning and declines throughout the day, reaching its lowest level around midnight. This pattern can change if you work a night .shift and sleep at different times of the day

Because of this, ACTH tests usually require a morning blood draw.

In general, the normal range for ACTH levels is 7.2 to 63.3 .picograms per milliliter (pg/mL) from 7:00 a.m. to 10:00 a.m

:Causes of high adrenocorticotrophic hormone levels include

Cushing's disease: This is the most common cause of increased-
ACTH levels. A benign (non-cancerous) tumor ([adenoma](#)) in
pituitary gland that produces excess amounts of ACTH, which then
elevates cortisol levels, causes ACTH. It's important to note the
.difference between Cushing's disease and [Cushing's syndrome](#)

Ectopic adrenocorticotrophic hormone tumor: Rarely, a tumor-
.outside of your pituitary gland can release excess ACTH

Primary adrenal insufficiency: This condition happens when-
adrenal glands don't produce enough cortisol due to some type of
damage to adrenal glands. [Addison's disease](#) is the most common
.cause of primary adrenal insufficiency

:Causes of low ACTH levels include

Cushing's syndrome: Cushing's syndrome from an [adrenal tumor](#) or by long-term use of [corticosteroid](#) medication for other conditions can cause low ACTH levels. This is because the excess cortisol prevents pituitary gland from releasing regular amounts of .ACTH

[Hypopituitarism](#): This is a rare condition in which there's a lack (deficiency) of one, multiple or all of the hormones made by your pituitary gland. ACTH can be one of the affected hormones. Any type of damage to your pituitary gland, such as pressure on the gland, surgical damage or [radiation therapy](#), can cause .hypopituitarism

Cortisol : is a hormone made by adrenal glands. Cortisol affects

:almost every organ and tissue in your body. It helps the body

Respond to stress (cortisol is sometimes called the "stress-hormone.")

Reduce inflammation (swelling)-

Control blood glucose (also called "blood sugar") and metabolism-

-Control your blood pressure

A cortisol test measures the level of cortisol in your **blood**, **urine**

.(pee), or **saliva** (spit)

?What is it used for

.**Cushing's syndrome**, a disorder that causes high cortisol levels-

.**Addison disease**, a condition that causes low cortisol levels-

Secondary adrenal insufficiency, a condition that causes low-cortisol levels. It happens when pituitary gland can't make enough

.ACTH to tell adrenal glands to make cortisol

Symptoms of Cushing's syndrome (too much cortisol) may :include

Weight gain-

Thin arms and legs-

Round face (moon face appearance)-

Increased fat around the base of your neck or between your-
shoulder blades

Easy bruising-

Wide purple streaks on your stomach, breasts, hips, and under-
your arms

Muscle weakness-

**Common symptoms of Addison disease and adrenal
:insufficiency (too little cortisol) may include**

Long-lasting fatigue-

Muscle weakness-

Loss of appetite-

Weight loss-

Abdominal (belly) pain-

**Thank you for
listening**