

# PhysioEx Lab Report

Exercise 4: Endocrine System Physiology

Activity 4: Measuring Cortisol and Adrenocorticotropic Hormone

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## Pre-lab Quiz Results

You scored 80% by answering 4 out of 5 questions correctly.

**1** Cortisol



You correctly answered: **is a hormone important in the body's response to stress.**

**2** ACTH

You correctly answered: **is a tropic hormone that stimulates cortisol release.**

**3** CRH

You correctly answered: **has a tropic effect on the anterior pituitary gland.**

**4** Cushing's syndrome refers to

Your answer: **an abnormally low level of cortisol in the blood.**

Correct answer: **a hypercortisolism, which could be iatrogenic.**

**5** A condition of hypocortisolism

You correctly answered: **refers to low levels of cortisol in the blood.**

## Experiment Results

### Predict Questions

No Predict Questions

### Stop & Think Questions

**1** Normally high levels of cortisol would inhibit release of

You correctly answered: **both ACTH and CRH.**

**2** Which hormone(s) stimulate(s) the pituitary gland to release ACTH?

You correctly answered: **CRH.**

## Experiment Data

Patient	Cortisol (mcg/dl)	High or low	ACTH (pg/ml)	High or low
1	2.01	Low	19.11	Low
2	38.13	High	14.90	Low
3	48.10	High	85.35	High
4	2.06	Low	97.24	High
5	49.11	High	16.51	Low

**Table 4.1 Cortisol and ACTH Disorders**

	Cortisol Level	ACTH Level	S
Cushing's syndrome (primary hypercortisolism)	High	Low	X
Iatrogenic Cushing's syndrome	High	Low	X
Cushing's disease (secondary hypercortisolism)	High	High	
Addison's disease (primary adrenal insufficiency)	Low	High	
Secondary adrenal insufficiency (hypopituitarism)	Low	Low	

## Post-lab Quiz Results

You scored 100% by answering 6 out of 6 questions correctly.

**1** Under normal conditions, if the amount of secreted CRH increases, then

You correctly answered: the amount of secreted ACTH will increase.

**2** Under normal conditions, if the amount of secreted ACTH increases, then

You correctly answered: the amount of secreted CRH will likely decrease.

**3** Under normal conditions, if the amount of secreted cortisol increases, then

You correctly answered: the amount of secreted ACTH will likely decrease.

**4** If a hypersecreting pituitary tumor develops, then an expected outcome is

You correctly answered: a diagnosis of Cushing's disease.

**5** If a hypersecreting adrenal cortex tumor develops, then an expected outcome is

You correctly answered: abnormally low levels of CRH due to negative feedback.

- 6 A patient's chart lists the diagnosis of Addison's disease. Therefore, you expect

You correctly answered: abnormally high levels of ACTH.

## Review Sheet Results

- 1 Which patient would most likely be diagnosed with Cushing's disease (view Table 4.1 in Experiment Results)? Why?

Your answer:

Patient number 5, due to the very high cortisol level and low ACTH level.

- 2 Which two patients have hormone levels characteristic of Cushing's syndrome (view Table 4.1 in Experiment Results)?

Your answer:

Patients 2 and 5.

- 3 Patient 2 is being treated for rheumatoid arthritis with prednisone. How does this information change the diagnosis (view Table 4.1 in Experiment Results)?

Your answer:

It means that the lower ACTH levels are expected considering it can cause iatrogenic Cushing's Syndrome.

- 4 Which patient would most likely be diagnosed with Addison's disease (view Table 4.1 in Experiment Results)? Why?

Your answer:

Patient number 4. This is because of the huge difference away from normal levels their labs are away from the typical high/low levels.