## Equine Cushing’s disease

[Download all Associated Files for this lesson from our Website](http://peer.tamu.edu/DLC/NSF_Resources.asp?ID=1533&type=browse&num=10&terms=&content=allcontent&subject=allsubjects&grade=allgrades&query=query&hl=no&count=537&number=6&view=yes)

## Summary:

## In this lesson, students will learn about the causes, symptoms, diagnostic tests, and treatment options of Cushing’s disease. This complex disease continues to be at the forefront of research in equine health. Through this presentation and accompanying activities students will discover current medical advances in dealing with this incurable disease.

## Keywords:

## Cushing’s disease, Hirsutism, Hormone, Laminitis, Pituitary, Pituitary Pars Intermedia Dysfunction (PPID),

**Subject TEKS:**

**§130.5. Equine Science (One-Half to One Credit).**

(2)  The student knows how to provide proper nutrition using accepted protocols and processes to maintain animal performance. The student is expected to:

(A)  determine nutritional requirements of horses;

(B)  describe the anatomy and physiology of horses; and

(C)  explain methods of maintaining horse health and soundness.

**§130.6. Veterinary Medical Applications (One Credit).**

(8)  The student evaluates animal diseases and identifies internal and external parasites. The student is expected to:

(A)  identify factors that influence the health of animals;

(B)  identify pathogens and describe the effects that diseases have on various body systems;

(C)  explain the best courses of treatment for common diseases;

**Grade Level:** 9th-12th

**Learning Objectives:** The learner will be able to:

* Describe the causes of Cushing’s Disease
* List the symptoms associated with Cushing’s Disease
* List the diagnosis options for a horse with suspected Cushing’s Disease.
* Describe treatments available for horses with Cushing’s Disease

**Time Required:**

* Cushing’s Disease PowerPoint – ½ to 1 class period
* Worksheet – ½ class period

**Materials:**

* PowerPoint Presentation
* Note taking handout
* Worksheet

**Background/Concepts for Teacher:**

For this lesson, the teacher should have a good understanding of what causes Cushing’s disease, the symptoms of Cushing’s disease, diagnosis tests available, and treatment options. There are also several key words that the teacher should know as well.

**Vocabulary / Definitions:**

## Cushing’s disease - Also known as Pituitary Pars Intermedia Dysfunction or PPID, Cushing's disease is a dysfunction of the pituitary gland.

## Hirsutism - the long, non-shedding hair coat that develops in older horses (typically ≥18 yr old) and is associated with pituitary pars intermedia dysfunction

## Hormone - A chemical substance produced in the body that controls and regulates the activity of certain cells or organs

## Laminitis—inflammation of sensitive layers of tissue (laminae) inside the hoof in horses and other animals

## Pituitary – gland at the base of the brain and controls the function of most endocrine glands

**Lesson Introduction:**   
To introduce this lesson, read the beginning of a case story shown on slide #2 about a horse named Cabby. The beginning of this case story tells about Cabby’s past and some of the current complications he is going through. This will then lead into a video explaining some of the significant facts about Cushing’s disease.

**Presentation explanation and Applying the Material:**

The information for this lesson will be shown in a PowerPoint. This PowerPoint’s purpose is to get across information about Equine Cushing’s Disease in an interactive way. This PowerPoint contains the story of a horse named Caddy that has Cushing’s disease. Throughout the lesson, the students will get to hear about Caddy’s journey through this disease. This presentation also provides information about Cushing’s disease including: causes, symptoms, diagnosis, and treatment.

**Activity/Application:**

[*http://onlinelibrary.wiley.com/doi/10.1111/j.1939-1676.2012.00932.x/epdf*](http://onlinelibrary.wiley.com/doi/10.1111/j.1939-1676.2012.00932.x/epdf)

**Assessment/Evaluation:**

For this lesson, a worksheet is provided that tests the student’s knowledge of this disease based on TEKS.

**Lesson Closure:**

Have students work in pairs with one student describing symptoms of Cushing’s and the other describing management.

**Lesson Extensions:**

* Find pictures of horses with various symptoms of Cushing’s and have students identify the symptoms.
* Have students develop a treatment/management plan for a horse recently diagnosed with Cushing’s. Make sure the plan is specific to the horse so include some background information for students (breed, gender, age, activity, etc)

**Safety Issues:**

No safety issues associated with this lesson

**Resources:** *include links to videos, websites, activities, etc… that are used in the lesson.*

* [www.windwalkerstable.com/Success%20**Story**%20**cushings**%20**disease**.doc](http://www.windwalkerstable.com/Success%20Story%20cushings%20disease.doc)

**References:**

* <https://ahdc.vet.cornell.edu/docs/Equine_Cushings_Tests.pdf>
* <http://www.ivis.org/proceedings/aaep/2006/pdf/z9100106000060.pdf>

**Author:**   
Undergraduate Fellow Name: Julie Goodfellow & Rachel Pruitt