



Melanosome disorders affect hair and skin coat color

Some are cosmetic only (dapple, gray, white markings)...

Some can be associated with lethal genetic problems.

Pigment can develop at areas of past inflammation.

What are disorders of pigment?

Diseases that cause pigment problems in the horse are characterized by disturbance in the horse's coat color. The skin contains melanocytes (cell type) that are responsible for providing pigment (melanosomes). This pigment is not only cosmetic but provides protection from ultraviolet (UV) radiation from the sun (just like our suntan). When abnormalities occur, the changes may be simply cosmetic (providing for dapple or roan colors or white markings) or, in some cases can be lethal.



Melanocyte disorders occur during embryonic development

- Dominant white coat color, Sabino, Tobiano, White markings , Roan coat color
- Lethal White Foal Syndrome (affected foals are white with blue eyes and develop colic within 24 hours of birth and die with distention of the colon)

Disorders of melanocyte stem cells

- *Grey horses*- a genetic condition that codes for complete loss of coat color by 6-8 years of age. The skin pigment is not affected- only the hair.
- *Cutaneous melanomas*: (disorder of proliferation of melanocytes) develop in 70-80% of gray horses by 15 years of age.

Disorders of melanosome formation

- These color disorders are caused by abnormal production and storage of melanin into the melanosome package (within the melanocyte).
- *Silver horses* or dapple coat color (may also have associated ocular anomalies): Rocky Mountain Horses and Icelandic Horses
- Appaloosa Spotting and Congenital Stationary Night Blindness (pigment abnormality in the skin and retina of the eye).



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Disorders of Melanin Synthesis

- These color disorders results due to an abnormality in the synthesis of pigment.
- *Cream coat color*: oculocutaneous (eye-skin) albinism; pink skin and blue eyes.

Disorders of Melanosome transfer to the melanocyte

- *Lavender Foal Syndrome* (also called color dilution lethal)- seen in Arabian horses of Egyptian origin; see dilute coat color and neurologic signs in new born foals

Acquired Diseases of Melanocytes causing loss of pigment

- *Vitiligo* is an autoimmune disorder also called *leukoderma/leukotrichia* (white skin/white hair)...purely cosmetic in most cases, does not cause hair loss like the whitening of the hair seen in alopecia areata (see *Immune Mediated* article)
- *Spotted leukotrichia* (spots of color loss, primarily in Arabians).
- *Hyperaesthetic leukotrichia*- pain associated with crust and loss of coat color along dorsal midline)
- *Post-Inflammatory Hyperpigmentation*: normal occurrence after injury or damage to the skin