A Donkey is Not a Horse: The Differences From a Practical Veterinary Standpoint

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Objectives of the Presentation:

• To discuss the practical differences between donkeys and horses.

• To discuss donkey and mule terminology, genetic makeup, anatomic differences, and donkey behavior.
Terminology associated with donkeys and mules:

- **Donkey**- worldwide common name for the ass family
  - **Jack, Jack Ass, or Jackass**- an intact male of the ass family
  - **Jennet, Jenny**- the female of the ass family.
- **Burro**- the smaller member of the ass family, usually of Mexican or Spanish descent. Usually gray in color and commonly thought of as feral asses.
- **Donkey Gelding, or Gelded Jack**- castrated male of the ass family
Hybrid Crosses:

- **Hinny** - the hybrid cross resulting from breeding a stallion to a jenny.
  - Mare Hinny - a female hinny.
  - Horse Hinny - a male hinny.

- **Mule** - the hybrid cross resulting from breeding a mare to a jack
  - Mare Mule - female mule, also referred to as a Molly Mule.
  - Horse Mule - male mule, often referred to as a John Mule.
  - Mule Mare - a mare used to raise mules.
Donkey Sizes:

• Miniature Donkey- member of the donkey family that stands at 36 inches or less at the withers at maturity.
• Standard Donkey- between 36 and 54 inches at the withers at maturity.
• Mammoth Donkey- greater than 54 inches at the withers at maturity.
• Jack Stock- indicative of multiple animals of mammoth size regardless of sex; similar to the term cattle for cows.
Genetic Makeup:

- Domestic horses - 64 chromosomes
- Domestic ass - 62 chromosomes
- **Mule** - female horse bred to a male ass - 63 chromosomes
- **Hinny** - male horse bred to a female ass - 63 chromosomes also

- Both crosses are considered sterile even though there are documented cases of fertility in the female mule (Mare Mule or Molly Mule).
- No documented cases of fertility in the female hinny or male of either hybrid cross.
• Spermatozoa are not produced in the testes of male mules as a result of incompatibility between paternal and maternal chromosomes resulting in a block in meiosis.

• Same chromosomal incompatibility causes partial meiosis arrest in female mules and hinnies with subsequent severe depletion of oocytes at birth.

• Female mules and hinnies can be used as embryo recipients
  – do cycle- most often erratic

• Male mules are not seasonal in behavior- can be used as a teaser

• Train mares to accept pasture breeding by a jack
  – May not work
Mammoth Jacks
Anatomic Differences:

- Ear length: donkeys > mules > horses
- Most donkey and many mule withers cannot hold a saddle well
- Donkey mane and tail hair is stiff
- Donkey tails have short hair; mules may be more like horses
- Donkey croup muscles are usually less developed than those of horses
  - Modern mules are more like horses
• The donkey pelvis tips down caudally more than the horse
  – Important during reproductive exams and dystocias
• Hooves are smaller than those for equal sized horses
  – Frog is set more caudally than that for the horse
• Pastern angles are greater
• Donkeys do not have chestnuts in the rear
  – May be absent in mules or smaller on the rear legs than horses
Front Foot:
Hind Foot:
Crossbred Feet
Anatomic Differences:

• Donkey ergots are more prominent than for horses
  – Often look more like a digital pad
  – May be up to 2 inches in diameter on mammoth donkeys
  – Mules more like horses

• Donkey inferior check ligaments
  – Have an extension from the deep flexor tendon to the superficial flexor tendon in the front legs (not found in the mule)
  – No ICL in the rear
Respiratory Differences:

- Laryngeal anatomy slightly different
- Donkey and some mule nasal passages are smaller than equal sized horses
  - Smaller NG tubes required
Castration:

- Larger scrotal vessels and thicker scrotal skin than the horse
- More prone to bleeding
- Use ligation along with emasculation
- Sedative/anesthetic drug doses approximately 25% higher in donkeys than equal sized horses
- Early castration at less than 3 months may increase chances of evisceration
  - Wait until after weaning
- Include the common vaginal tunic in the ligation if performing at < 3 months
Behavioral Differences – Donkeys are very stoic:

• Colic
  – May go undetected longer
  – Assume severe problem with mild pain signs
  – Treat with decompression of the stomach, analgesics, and antacids
  – Increased pulse rate may not be reliable
• Look for subtle changes in behavior or attitude
Laminitis:

• May progress without severe signs
  – Less responsive to hoof testers than horses
  – Radiograph early to look for rotation/sinking
  – Analgesic medications important
**Tolerance of Medical Procedures:**

- Best to perform with other animals nearby
- Donkeys need to see what is going on for a while
- “Stubbornness” is evaluation of the situation
- Twitch works well in most animals—most often unnecessary
- Go slow and stay quiet
- Reverse and stop are the best gears for donkeys
- Sedation with xylazine, butorphanol, detomidine
  – diluted to increase the volume
  – increase body weight dose by 25%
Donkeys are highly social animals:

- Form strong attachments to others
- Jacks aggressive towards newly introduced jennets
  - May occur after being brought back after a short separation– may need to wear a breeding muzzle on first introduction
  - Can be removed after things calm down
  - Kicking, biting, and chasing are the norm
- Vocalization very common– braying
  - Greeting, Hungry, Horny!
  - Calling out to other jacks
Pecking order is important:

• They need space to eat
• Mothers correct foals early in life with mild kicking and biting
• Foals play fight with mothers on day of birth
• Mothers move off from the herd to foal
  – Keep newborns away from others initially
  – Will stay out in the rain/snow with a new foal (normally they would be inside)
Hauling and drinking:

- Prefer to ride backwards
- Leave loose in a stock trailer
- May not drink when hauled, even for 12 to 18 hours and for hours afterwards if in a new place
- Can keep loaded if trip is less than 24 hours
- Stop to rest animals for an hour every 4 to 6 hours
- Stop and unload every 12 hours if hauling more than 24 hours
Drinking:

- Donkeys can dehydrate and lose 30% of body weight without adverse affects.
- Can rehydrate by drinking within 5 minutes.
- May refuse to drink for 48 to 96 hours if removed from their normal water supply.
- Common for hauling, showing, and hospitalization.
- May have to go home to resume drinking and eating.
Drug Metabolism:

• Research is limited
• Differences exist among horses, donkeys, and mules
• Possibly also among different sizes of donkeys
• Difficult to make specific dosage and frequency recommendations
• Use horse specs
What we do know (research performed at Texas A and M University):

- Phenylbutazone- clearance after a single IV injection (4.4 mg/kg) is rapid; compared to horses, miniature donkeys may require more frequent administration to achieve therapeutic efficacy
  - Suggestion: 4.4 mg/kg IV or orally **BID/TID** or possibly **8.8 mg/kg SID**
• Trimethoprim-sulfamethoxazole- dosing intervals for IV administration of trimethoprim (2.5 mg/kg)-sulfamethasoxazole (12.5 mg/kg) in horses may not be appropriate in donkeys and mules; donkeys eliminate the drugs rapidly compared with horses
  – Suggestion: oral or IV TS at same levels BID
Summary:

- Donkey/mule specific terminology must be understood to speak intelligently to owners
- Genetic makeup of donkeys and mules and horses is different
- Some interbreeding is possible
- Most donkey/horse hybrids are sterile but females cycle like horses
- Several clinically important anatomical differences exist between donkeys and horses
- Donkey behavior must be understood to handle them effectively and safely
- Stoicism is manifested by disguising pain
Summary:

• Subtle differences in attitude and behavior may be the only indicators of even severe problems
• Social interaction is very important to donkeys with regards to nutrition and reproduction
• Donkeys may go long periods of time without drinking during traveling, hospitalization, and when moved to new surroundings
• Drug metabolism is different among donkeys, horses, and mules
• Much more research is needed to define correct dosage levels and intervals in these species
References/Suggested Reading:


Donkey Organizations:

• American Donkey and Mule Society, PO Box 1210, Lewisville, TX 75067  www.lovelongears.com
• National Miniature Donkey Association, 1450 Dewey Road, Rome, NY 13440 www.matrixdm.com/nmda
• Canadian Donkey and Mule Association, Julie Taylor, Box 341, Nanton, Alberta, Canada, TOL1RO
• American Council of Spotted Asses, Box 121, New Meile, MO 63365
• New England Animal Health Institute, PO Box 1160, Chester, VT 05143 www.NEAHI.org
• Donkey Publications
• The Brayer Magazine, American Donkey and Mule Society
• Asset, National Miniature Donkey Association
• Mules and More Magazine, PO Box 460, Bland, MO 65014 www.mulesandmore.com