Preparing Horses for Standing Ophthalmic Surgery

Richard J. McMullen Jr., Dr. med. vet.
DACVO, DECVO, CAQ Equine Ophthalmology (Germany)
Professor of Equine Ophthalmology
Auburn University College of Veterinary Medicine
JT Vaughan Large Animal Teaching Hospital
1500 Wire Road, Auburn, AL 36849-5550, USA
rjm0040@auburn.edu

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Background

- Improve care for horses with ophthalmic diseases or problems
  - Anatomy suited for standing surgery
  - Earlier surgical intervention
  - Multiple procedures

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Background

- Eliminate GA/recovery risks
- Increase in case management efficiency
- Hospitalization/ convalescence
  - Reduced duration

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Overview

- General anesthesia
- Standing sedation
- Local anesthesia and head support
- Surgical procedures
- Other considerations

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General anesthesia

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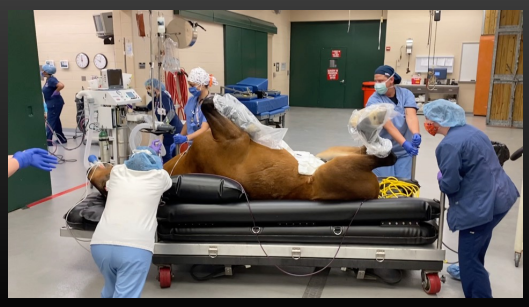
General anesthesia



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Standing Sedation

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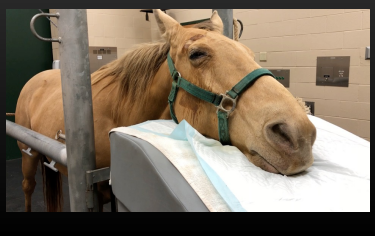
Sedation

- Detomidine (0.01-0.02 mg/kg) i.v.
- Butorphanol (0.01—0.02 mg/kg) i.v.
- Butorphanol (0.02-0.04 mg/kg) i.m.



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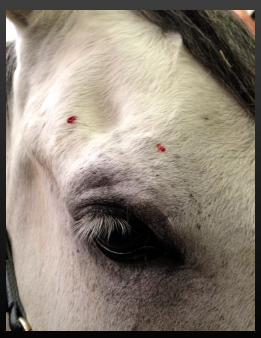
Analgesia/akinesia

- Frontal/palpebral/ auriculopalpebral
- 2% mepivacaine s.c.
- 0.5% proparacaine HCL



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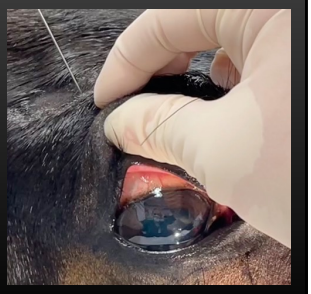
Analgesia/akinesia

- Frontal/palpebral/ auriculopalpebral
- Retrobulbar block
- 2% mepivacaine s.c.
- 0.5% proparacaine HCL



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Retrobulbar block

- Immobilization of the globe
- Prevents horse from watching the surgery – INCREASES compliance & decreases movement
- But…also effective intra-/perioperative analgesia
  - Improved postoperative comfort

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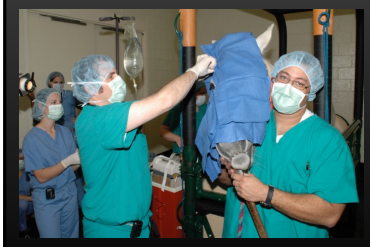
Head position & support



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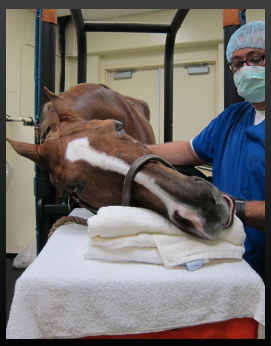
Head position & support

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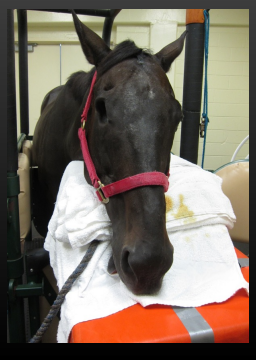
Head position & support

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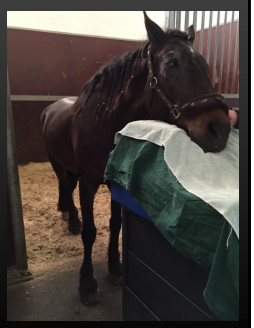
Head position & support

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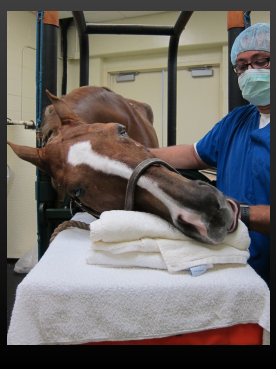
Head position & support



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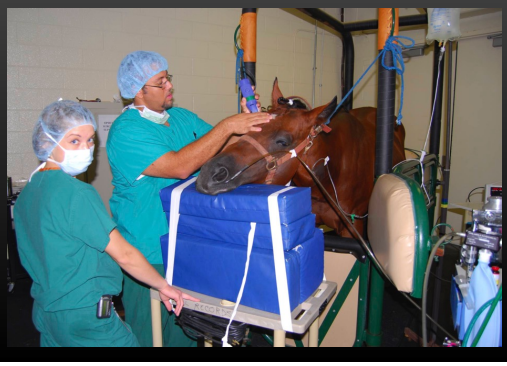
Head position & support



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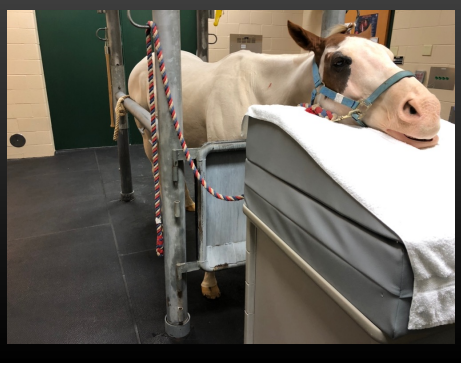
Head position & support



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Clinician position

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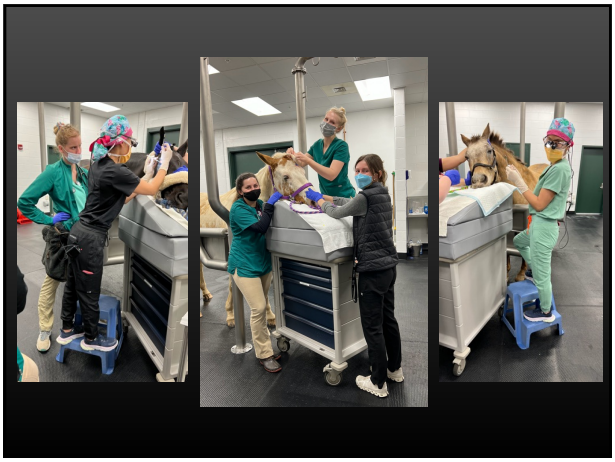

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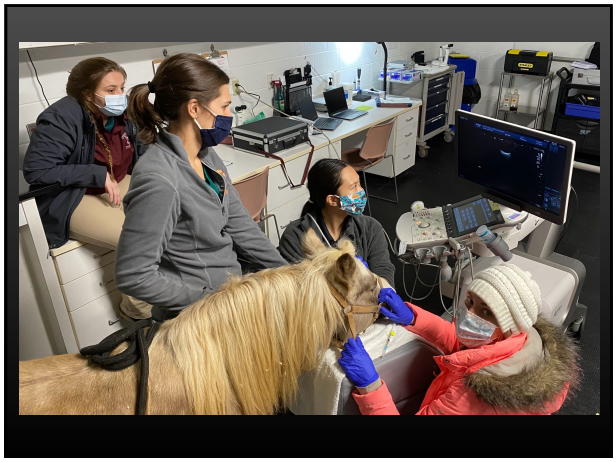

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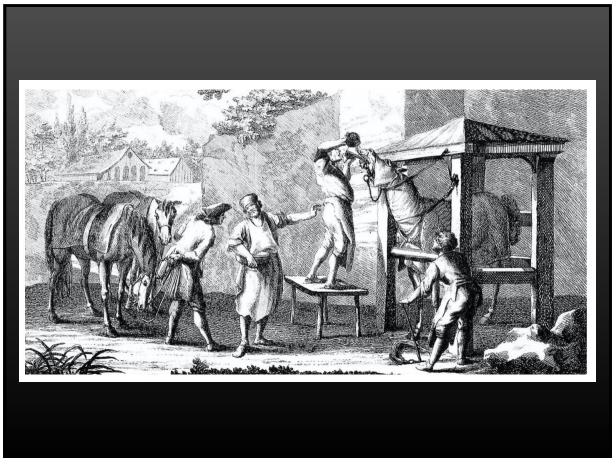

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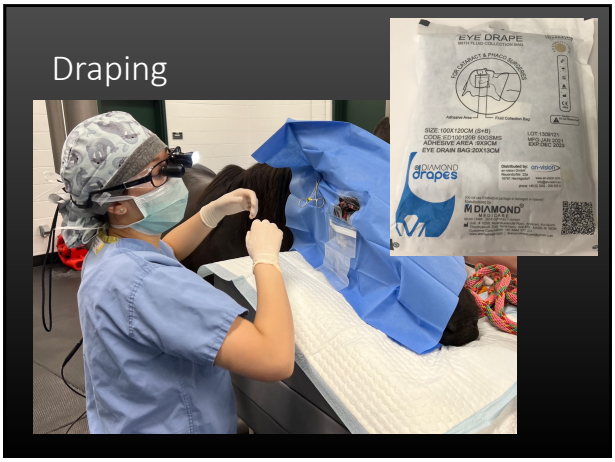

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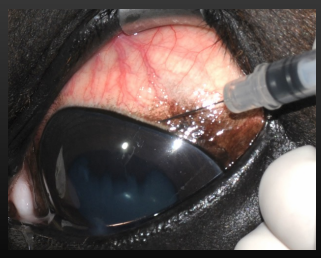
Draping

- Quick & minimally invasive procedures
  - NO drape



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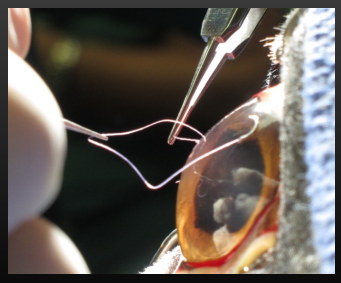
Draping

- When using suture
  - DRAPE



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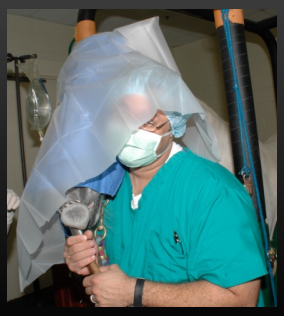
Considerations

- Do not cover contralateral eye
- Absorbent > plastic
  - Noise
- Self-adhesive
  - Ioban
- Fixate drape to halter



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Microsurgical instrumentation

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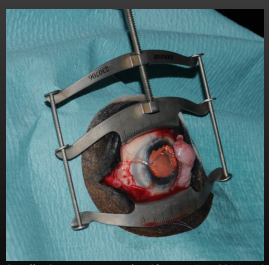
Eyelid speculum

- Blades open parallel
  - Uniform palpebral fissure
- No pressure on globe
- Fixation points for stay sutures



https://northamerica.covetrus.com/search?q=equine%20eyelid%20speculum

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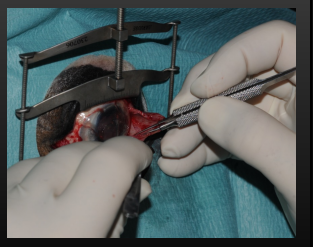
Forceps & needle holders

- Colibri forceps & needle holders with longer grip
  - Facilitate better hand support
  - Increase field of view
  - Tissue fixation w/o hands over LOI



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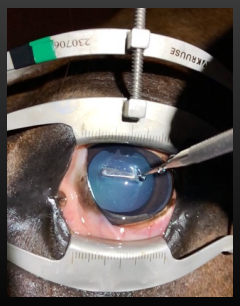
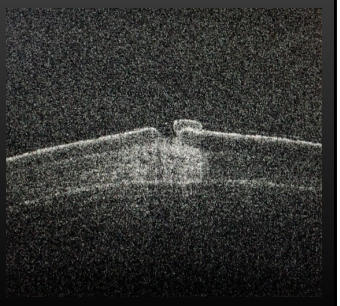
Martinez corneal dissector





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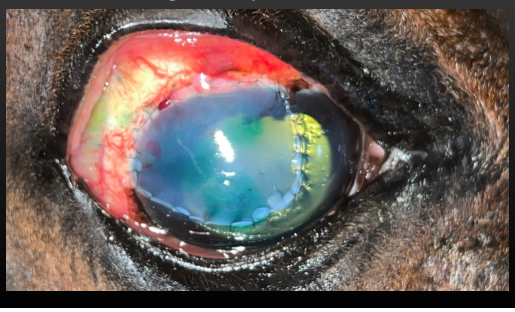
Conjunctival & amnion grafts

- Ford interlocking suture pattern



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Magnification & illumination

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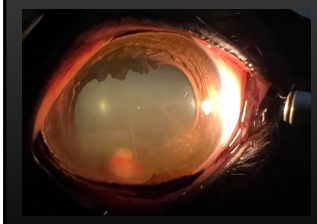
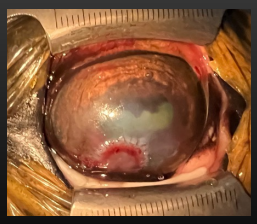
Standing ophthalmic surgery





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Categories of surgery

- Category I: Minimally invasive
- Category II: Simple
- Category III: Advanced
- Category IV: Complicated

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Categories of surgery

- Category I: MINIMALLY INVASIVE
  - Quick – No RB, profound sedation & LA
  - Examples:
    - Aqueous paracentesis, intravitreal and suprachoroidal injections, episcleral cyclosporine implant placement, diamond burr keratotomy

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Categories of surgery

- Category II: SIMPLE
  - More advanced instrumentation
  - More time consuming, RB & LA
  - Examples:
    - Enucleation, nictitans excision, eyelid neoplasia, laser ablation iris/uveal cysts, transscleral cyclophotocoagulation (TSCP)

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Categories of surgery

- Category III: ADVANCED
  - Sutures required, precise tissue dissection
  - Microsurgical skills
  - Examples:
    - Superficial lamellar keratectomy (SLK), grafting procedures (conjunctiva, amniotic membrane, BioSiSt, A-cell), intrastromal corneal injections, glaucoma shunt bleb revision ("deroofinig")

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Categories of surgery

- Category IV: COMPLICATED
  - Highly specialized procedures
  - Require advanced microsurgical skills/experience, patience and intuition
  - Examples:
    - Suprachoroidal cyclosporine implant placement (CSI), deep lamellar endothelial keratoplasty (DLEK), posterior lamellar keratoplasty (PLK), corneoconjunctival transposition (CCT), gonio-shunt placement

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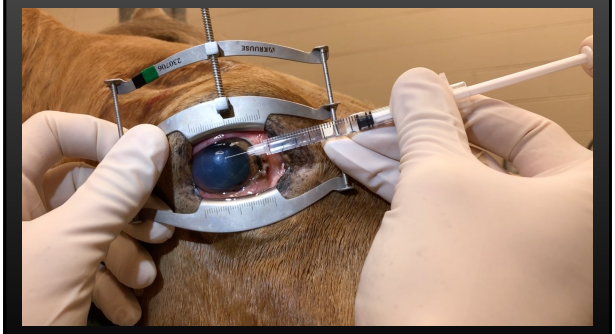

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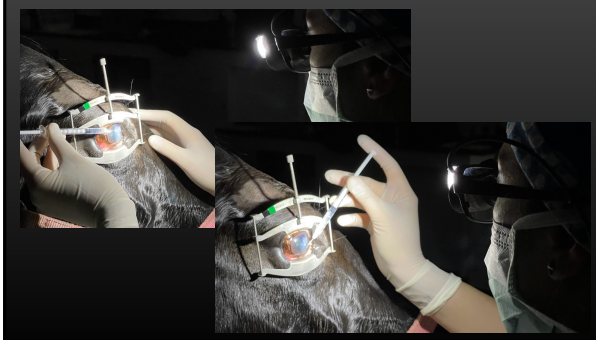
Be a little ambidextrous



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Take home points

- Use pads instead of people for stands
- Embrace the retrobulbar block
- Keep horse's eye at shoulder/eye level whenever possible
- 30G/12mm length needles or microneedles
- Ford interlocking suture pattern

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Acknowledgements

- AU Equine Ophthalmology Students & Service
  - Allie Ng, Kim Lam, Shenise Howard, Milena Sanchez, Roxy Rodriguez, Alessandra Keenan, Britta Fischer, Ethan Hefner, Lauren Charnock, Teresa Barros, Hannah Bostick, and Stephanie Mitchell

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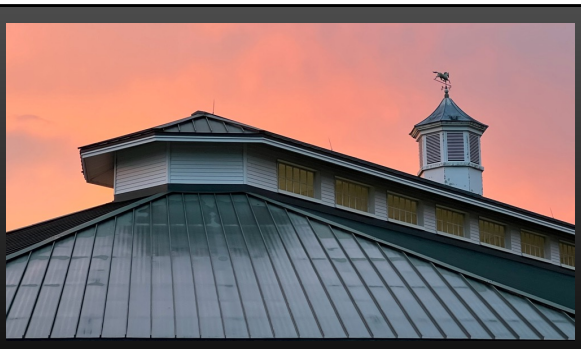

Thank you!

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