



Standard Operating Procedure: Equine Restraint Techniques

These SOPs were developed by the Office of the University Veterinarian and reviewed by Virginia Tech IACUC to provide a reference and guidance to investigators during protocol preparation and IACUC reviewers during protocol review. They can be used as referenced descriptions for procedures on IACUC protocols.

However, it is the sole responsibility of the Principal Investigator to ensure that the referenced SOPs adequately cover and accurately represent procedures to be undertaken in any research project. Any modification to procedure as described in the SOP must be outlined in each IACUC protocol application (e.g. if the Principal Investigator plans to use a needle size that is not referenced in the SOP, simply state that alteration in the IACUC protocol itself).

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I. Procedure Summary and Goal

Describes procedures for the safe and humane restraint of horses for routine handling and treatments.

Considerations:

Having a basic knowledge of the animal's behavior is important in safe and humane handling. As prey animals, horses have a strong fight-or-flight response and startle easily at quick movement or loud noises. The more frequently horses are handled in a calm, non-stressful manner, the more easily they will become accustomed and accepting of handling and restraint methods. Because they are herd animals, they generally behave more calmly in close proximity and visual contact with other horses. Age and breed will also influence horse behavior and response to restraint. When working with horses, often only minimal restraint is needed to effectively manage procedures. In addition, talking to horses has a major effect; soothing tone to calm, sharp tone may help keep horse in place.

- a. Horses are also very sensitive to the skill and confidence of the handler, and are quick to detect nervousness or fear of handler.
- b. Field of vision – almost 360° range of vision (Figure 1)
 - i. Monocular – about 285°
 - ii. Binocular – about 65°
 - iii. Two blind spots
 - iv. Three to four feet in front of face
 - v. Directly behind head, extending over back and behind when head facing straight forward
- c. Handlers should stand close to the shoulder of the horse, and typically approach and lead from the horse's left side. If working with another person, both individuals should work from the same side.
- d. Handlers should be vigilant at all times so as to avoid injury to animals or themselves. Horses may:
 - i. Strike with front feet; kick straight behind or out sideways ("cow kick") with hind
 - ii. Bite; rear; fling head or body
- e. NEVER wrap the rope around your hand, arm or other body part

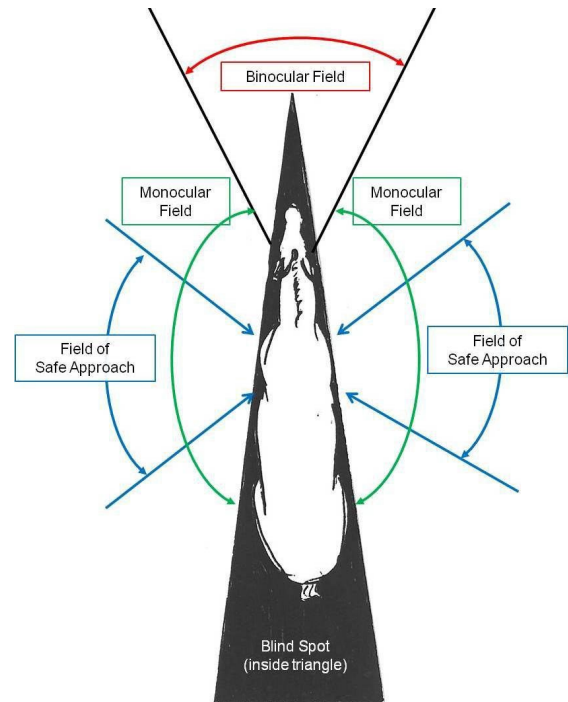


Figure 1. Horse Field of Vision

Basic types of restraint

- f. Halter and Lead Rope

- g. Mechanical restraints (e.g., twitches, stanchions)
- h. Chemical restraint

II. Personal Protective Equipment (PPE) and Hygiene

- a. Ensure appropriate PPE is used to protect handler from accidental injury or exposure to blood and other body fluids, such as:
 - i. Scrubs or overalls
 - ii. Steel-toed shoes or boots
 - iii. Leather or fabric gloves

III. Supply List

- a. Halter and lead rope
- b. Mechanical restraint equipment (e.g., twitches, stanchions)
- c. Chemical restraint

IV. Detailed Procedure

- a. Halter and Lead Rope
 - i. Halter and leads can be used as separate items, which allows you to leave halter in place without lead rope, or as one complete unit.
 - ii. Approach horse from left side at shoulder. Lead is looped over the horse's neck, either from under or over depending upon size of horse.
 - iii. Hold the halter with crown piece in right hand, buckle/throatlatch or noseband in left hand (Figure 2).



Figure 2. Haltering a Horse

- iv. Facing the same direction as the horse, reach under the horse's neck with crown piece, guide the noseband over nose, and pass the crown piece over the horse's neck, behind the ears. Fasten buckle or tie if rope halter style (Figure 3).
- v. Alternately, if halter has quick-release snap at throatlatch, crown piece can remain buckled, and be slipped over the horse's ears – either to place on horse or remove.
- vi. If the horse is accustomed to being tied, the lead can be tied using a quick-release knot to a secure location, such as a ring or post, or to the stanchion if being used (Figure 4).

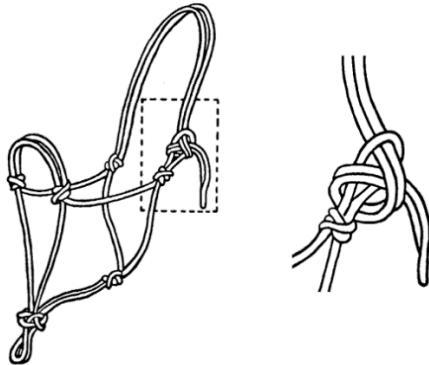


Figure 3. Tying a Rope Halter Restraint

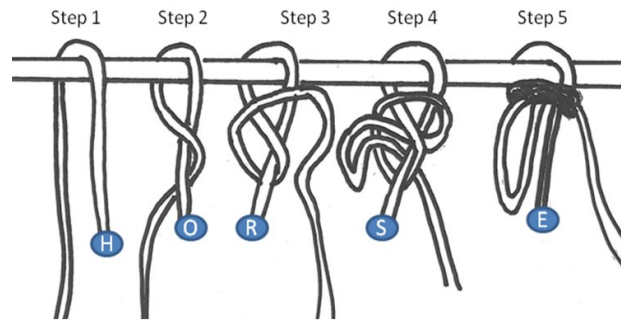


Figure 4. Tying a Quick-Release Knot

b. Twitch Restraint

- i. Although the exact mechanism of action is unknown, it is believed that pinching of the horse's skin is not solely divertive but rather releases endorphins which have a sedative effect, which may resemble that of classical acupuncture.
- ii. In a horse not resistant to the twitch, it may take three to five minutes for endorphins to be released to produce a sedative effect (droopy lips, glassy eyes, dropped head, etc), and 10 to 15 minutes for the endorphin effect to wear off after twitch removal.
- iii. Horses should always be haltered prior to application of a twitch restraint, and the handler should skin twitch or hold mechanical twitches and lead rope together on same side as the veterinarian or other handler.
- iv. SAFETY - At all times, handler should be vigilant – of both the horse's response and actions, as well as position and actions of the veterinarian or other handler. Handler should alert others immediately if the twitch comes off accidentally.



Figure 5. Skin Twitch with Hand



Figure 6. Nose Twitch with Hand

v. Skin twitch with hand (Figure 5)

1. Short term, can be used to distract horse momentarily. Firmly grab a handful of loose skin on the shoulder or neck, roll and hold; working the twitch (pulsing or massaging movement) may assist with distraction and/or sedative effect.

vi. Nose twitch with hand (Figure 6)

1. From the side of the horse's head, quietly run palm down bridge of nose to muzzle.
2. Grab upper lip firmly in a similar fashion to the neck twitch hold; again, working the twitch may assist with distraction and/or sedative effect.

vii. Mechanical twitches

1. Two basic styles of mechanical device twitches
 - a. wooden bar with rope (or chain) loop at the end; the longer the handle, the more leverage
 - b. metal plier-like clamp that closes over the lip similar to the action of a nutcracker, with or without short rope through both open ends; commonly called the "humane twitch"; may have a snap on the end of rope to attach to halter

2. Procedure for use of wooden handled twitch with rope loop (Figure 7)

Figure 7. Using a Wooden Handle Twitch



- a. Slip your left hand (non-lead rope hand) through the rope loop of the twitch.
- b. Standing on left side of haltered horse, run your left hand down the bridge of the horse's nose, grab the upper lip firmly, and slide the rope over your hand and onto lip.
- c. With handle, twist rope to tighten securely (firmly but not excessively) around lip. Rotate the handle clockwise on the left side of the horse (counterclockwise on the right). This will reduce the chances of the twitch falling off the nose.
- d. Handle should be held in one or both hands, with lead rope for most secure leverage and control of horse's head; remain close to the horse, and at shoulder, on same side as veterinarian or other handler. Allow horse to settle. Be aware that the handle can become a weapon if you lose your grip on it.

3. Procedure for use of metal clamp style twitch ("humane twitch")

- a. Slide the open twitch over your left hand (non-lead rope hand).
- b.
- c. Standing on left side of haltered horse, run your left hand down the bridge of the horse's nose, grab the upper lip firmly, and slide the metal clamp over your hand and onto lip.
- d. Close the handle to grasp the lip and wrap the rope around the end of the twitch (Figure 8).
- e.
- f. Handle should be held in one or both hands with lead rope for most secure leverage and control of horse's head; remain close to the horse, and at shoulder, on same side as veterinarian or other handler. Allow horse to settle.
- g. A snap on the twitch rope allows for the twitch to be attached to a side ring on the halter. However, as the twitch may slip off, it is safer to keep one hand on twitch at all times, even if clipped to the halter.



Figure 8. Using the "Humane" Twitch



Figure 9. Stanchion

viii. Stocks or stanchion stalls (Figure 9)

1. Useful for many purposes, such as injury treatment, rectal exams and palpation.
2. They may be designed to pass through (with front and back gate) or to walk horse in, secure behind, and then back out when finished.

3. Halter may be attached to stanchion ring with quick-release knot; some may have cross-ties with quick-release snaps.

NOTE – horses may try to jump out or go down.

- c. Chemical restraint
 - i. Under the direction of the veterinarian, chemical restraint may be utilized.
 - ii. Can be used alone or with other techniques or devices.

V. Variations

- a. Ear twitch
- b. Chiffney bit (anti-rear bit)
- c. Lip or nose chain on lead rope
- d. Wooden twitch with chain
- e. Leg lift or hobbles

VI. Potential Adverse Effects, Mitigation, or Treatment

- a. Trauma
 - i. Bruising, lacerations, fractures, neuropraxia, permanent nerve damage
 1. Contact veterinary staff
- b. Distress
 - i. Physiological changes
 1. Tachycardia, tachypnea, hypertension, hyperthermia, etc.
 - a. Contact veterinary staff
- c. Metabolic/hematologic disturbances
 - i. Stress leukogram, other

VII. References

American Association of Laboratory Animal Science. Assistant Laboratory Animal Technician Training Manual. (Memphis, TN: Drumwright and Co, 2012)

Lagerweij E, Nelis PC, Wiegant VM, van Ree JM. The twitch in horses: a variant of acupuncture. *Science*. 14;225(4667):1172-4. (1984 Sep)

Leach, J., and Lawrence, L. Horse Behavior & Senses: Vision, Touch, Hearing and Social Behavior. Horse Industry Handbook, American Youth Council, Inc. 1993.

McCurnin, D. and Bassert, J. Clinical Textbook for Veterinary Technicians (5th ed.). (Philadelphia, PA: Saunders 2002)