

Equine Neurological Exam Form

Patient ID _____ **Horse Name** _____
Horse Age _____ **Breed** _____ **Sex** _____ **Use** _____
Veterinarian Performing Exam _____ **Date** _____

History

Onset, progression, diagnostics performed, response to any treatments

Comments

Physical Exam

Temp	Pulse	Resp
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Comments

Mental Statusⁱ

Alert and responsive No Yes
 Lethargicⁱⁱ No Yes
 Stuporousⁱⁱⁱ No Yes
 Semi-comatose^{iv} No Yes
 Comatose^v No Yes
 Delirious^{vi} No Yes

Comments

Behavior^{vii}

Behavior change^{viii} No Yes
 Compulsive yawning No Yes
 Compulsive circling No Yes
If so, to R or L? Right Left
 Head Pressing No Yes
 Seizures No Yes

Comments

Head Evaluation

Head Tilt^{ix} No Right Left
 Head Turn^x No Right Left
 Intention Tremor^{xi} No Yes

Comments

Eyes

	LEFT		RIGHT		
Ophthalmic Exam ^{xii}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Vision ^{xiii}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Menace ^{xiv}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Pupil size/symmetry ^{xv}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Pupillary light response ^{xvi}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Horner's syndrome ^{xvii}	<input type="checkbox"/> Absent	<input type="checkbox"/> Present	<input type="checkbox"/> Absent	<input type="checkbox"/> Present	<input type="checkbox"/> N/A
Strabismus ^{xviii}	<input type="checkbox"/> Absent	<input type="checkbox"/> Present	<input type="checkbox"/> Absent	<input type="checkbox"/> Present	<input type="checkbox"/> N/A

Comments

Eye drop ^{xiv}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Physiologic nystagmus ^{xx}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Resting nystagmus ^{xxi}	<input type="checkbox"/> Absent	<input type="checkbox"/> Present	<input type="checkbox"/> Absent	<input type="checkbox"/> Present	<input type="checkbox"/> N/A
Positional nystagmus ^{xxii}	<input type="checkbox"/> Absent	<input type="checkbox"/> Present	<input type="checkbox"/> Absent	<input type="checkbox"/> Present	<input type="checkbox"/> N/A

Comments

Patient ID _____

Date _____

Face	LEFT		RIGHT		
Sensation ^{xxiii}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Muscle mass, jaw tone ^{xxiv}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Facial expression ^{xxv}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Palpebral reflex ^{xxvi}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A

Comments

Hearing ^{xxvii}	LEFT		RIGHT		
	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A

Comments

Tongue, Pharynx, Larynx	LEFT		RIGHT		
Muscle tone, mass ^{xxviii}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Swallow ^{xxix}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A

Comments

Body Evaluation	LEFT		RIGHT		
Cervicofacial reflex ^{xxx}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Cutaneous trunci ^{xxxi}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Perineal sensation ^{xxxii}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Tail tone ^{xxxiii}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Anal tone ^{xxxiv}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Areas of abnormal sweating	<input type="checkbox"/> Absent	<input type="checkbox"/> Present	<input type="checkbox"/> Absent	<input type="checkbox"/> Present	

Comments

Slap test/Scope ^{xxxv}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Neck flexion	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Neck muscle mass ^{xxxvi}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Forelimb muscle mass	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Hindlimb muscle mass	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Epaxial muscle mass	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Forelimb posture	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Hindlimb posture	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Forelimb hoofwear	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A
Hindlimb hoofwear	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	<input type="checkbox"/> N/A

Comments

Gait Evaluation (at walk)

Truncal sway	<input type="checkbox"/> Absent	<input type="checkbox"/> Present			
Toe dragging	<input type="checkbox"/> LF	<input type="checkbox"/> RF	<input type="checkbox"/> LH	<input type="checkbox"/> RH	<input type="checkbox"/> N/S
Inconsistent limb placement ^{xxxvii}	<input type="checkbox"/> LF	<input type="checkbox"/> RF	<input type="checkbox"/> LH	<input type="checkbox"/> RH	<input type="checkbox"/> N/S
Inconsistent stride length ^{xxxviii}	<input type="checkbox"/> LF	<input type="checkbox"/> RF	<input type="checkbox"/> LH	<input type="checkbox"/> RH	<input type="checkbox"/> N/S
Dysmetria ^{xxxix}	<input type="checkbox"/> LF	<input type="checkbox"/> RF	<input type="checkbox"/> LH	<input type="checkbox"/> RH	<input type="checkbox"/> N/S
Limb interference ^{xl}	<input type="checkbox"/> No	<input type="checkbox"/> Yes			
Standing tail pull ^{xli}	<input type="checkbox"/> Normal	<input type="checkbox"/> Weak left	<input type="checkbox"/> Weak right	<input type="checkbox"/> N/A	
Walking tail pull ^{xlii}	<input type="checkbox"/> Normal	<input type="checkbox"/> Weak left	<input type="checkbox"/> Weak right	<input type="checkbox"/> N/A	

Comments

Circling left (<i>counterclockwise</i>):	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal		<input type="checkbox"/> N/A	
Circumduction ^{xliii}	<input type="checkbox"/> Absent	<input type="checkbox"/> Present			
Toe dragging	<input type="checkbox"/> LF	<input type="checkbox"/> RF	<input type="checkbox"/> LH	<input type="checkbox"/> RH	<input type="checkbox"/> N/S
Interference/Crossing over hindlimbs	<input type="checkbox"/> Absent	<input type="checkbox"/> Present			
Pivoting ^{xliv}	<input type="checkbox"/> Absent	<input type="checkbox"/> Present		<input type="checkbox"/> N/A	

Comments

Circling right (<i>clockwise</i>):	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal		<input type="checkbox"/> N/A	
Circumduction	<input type="checkbox"/> Absent	<input type="checkbox"/> Present			
Toe dragging	<input type="checkbox"/> LF	<input type="checkbox"/> RF	<input type="checkbox"/> LH	<input type="checkbox"/> RH	
Interference/Crossing over hindlimbs	<input type="checkbox"/> Absent	<input type="checkbox"/> Present			
Pivoting	<input type="checkbox"/> Absent	<input type="checkbox"/> Present		<input type="checkbox"/> N/A	

Comments

Backing	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal		<input type="checkbox"/> N/A	
Foot dragging	<input type="checkbox"/> LF	<input type="checkbox"/> RF	<input type="checkbox"/> LH	<input type="checkbox"/> RH	
Pacing ^{xlv}	<input type="checkbox"/> No	<input type="checkbox"/> Yes			
Basewide limb	<input type="checkbox"/> No	<input type="checkbox"/> Yes			

Head elevation ^{xlvi}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal		<input type="checkbox"/> N/A	
Serpentine ^{xlvii}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal		<input type="checkbox"/> N/A	
Hill/Curb ^{xlviii}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal		<input type="checkbox"/> N/A	
Blindfold ^{xlix}	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal		<input type="checkbox"/> N/A	
Hopping ^l	<input type="checkbox"/> Normal	<input type="checkbox"/> Weak LF	<input type="checkbox"/> Weak RF	<input type="checkbox"/> N/A	

Comments

Ataxia Grade

- 0^{li} 1^{lii} 2^{liii} 3^{liv} 4^{lv} 5^{lvi}

Neuroanatomical Localization^{lvii}

- Focal Multifocal Diffuse
 Cerebrum^{lviii} Brainstem^{lix} Cerebellum^{lx} Spinal cord^{lxi} Peripheral^{lxii} Musculoskeletal^{lxiii}

Comments

Differential Diagnoses

Diagnostic Plan

Treatment Plan

Appendix

ⁱ Patient's level of awareness or consciousness. Affected by ascending reticular activating system in brain stem or diffuse forebrain disease.
ⁱⁱ Blank facial expression with sluggish response to stimuli and reduced voluntary activity.
ⁱⁱⁱ Responds only to strong stimuli but is standing.
^{iv} Recumbent and only responsive to strong stimuli.
^v Recumbent and completely unresponsive to noxious stimuli.
^{vi} Reduced alertness but anxious, walking compulsively, or interacting abnormally with handlers.
^{vii} Abnormalities of behavior are termed dementia and are signs of forebrain disease.
^{viii} Aggression or timidity, loss of learned behaviors or skills.
^{ix} Any deviation greater than 5 degrees from vertical. Described from patient's perspective in terms of which direction the poll is rotated. Head tilt suggests dysfunction of the vestibular system (CN VIII, medulla oblongata, cerebellum).
^x Head and neck turn without tilt indicates asymmetric cerebral disease.
^{xi} Jerky head movements when moving towards feed often indicate cerebellar dysfunction.
^{xii} Note decreased tear production, corneal abnormalities, signs of uveitis, abnormalities associated with optic nerve.
^{xiii} Using obstacle course, observation of horse running into objects. Can blindfold one eye at a time to localize.
^{xiv} Repeat nasally and temporally, being sure to avoid eyelashes or excessive air movement. Assess ability to blink first; if unable to blink, horse should still evade if menace is normal. Remember foals less than 2 weeks of age will not menace.
^{xv} Pupils should be symmetrical, appropriate for ambient light, and horizontal relative to the ground. Controlled by CNs II and III.
^{xvi} Swinging light test allows observation of direct and indirect response. Shine light from about 18 inches alternating between eyes and look for more powerful constriction ipsilateral to light. PLR controlled by CN II, optic tract, brainstem, CN III.
^{xvii} Pupillary constriction, ptosis of upper eyelid, protrusion of nictitating membrane, sweating.
^{xviii} Abnormal eye position. Pupils should be horizontal and parallel to ground. Controlled by CNs III, IV, VI.
^{xix} "Dolls eye" reflex. When nose is elevated, eyes should move ventrally to maintain horizontal gaze.
^{xx} When head is moved side to side, eyes should move slowly opposite the direction of the movement of the head and quickly in the direction of head movement. Involves vestibular system and CNs III, IV, VI, and VIII.
^{xxi} Nystagmus should not be present at rest or spontaneously.
^{xxii} Nystagmus should not develop with head elevated.
^{xxiii} CN V. Assess sensation of ears, face, and nasal septum.
^{xxiv} CN V. Assess masseter, temporal, and pterygoid muscles for symmetry, ability to chew, jaw alignment.

- xxxv CN VII. Look for symmetry of ears, eyes, muzzle. Subtle ptosis may be seen by comparing angle of eyelashes which should be symmetrical and extending perpendicular to globe/parallel to ground.
- xxxvi CN V to feel and CN VII to respond appropriately. Animal with loss of palpebral reflex will not menace normally but should move head to evade if unable to blink.
- xxxvii Subjective assessment of response to sounds. BAER needed to objectively assess.
- xxxviii CN XII. Withdraw tongue from each side of mouth to evaluate for muscle symmetry and ability to replace tongue within two efforts.
- xxxix CN IX and X. Observe normal mastication and swallowing externally or via endoscope.
- xl Elicit by lightly tapping skin between jugular groove and crest at the level of C2. Horse should flick ear and pull back lips.
- xli Stimulate skin over truck and observe for skin flick response.
- xlii Horse should respond to stimulation of the perineal region by clamping tail, contracting anus, kicking or moving away.
- xliiii Most normal horses will clamp tail if it is grasped. Note breed differences or question if tail has been blocked for performance.
- xliiiiiv Stimulation of anus should result in sphincter contracture and tail clamping.
- xliiii Normal response is adduction of contralateral arytenoid cartilage when withers are slapped with moderate intensity. Determine via palpation or endoscopy (more sensitive).
- xliiiiiv Asymmetry may be seen with unilateral CN XI (spinal accessory nerve) lesions.
- xliiiiiv Placing feet out of line from one step to the next, weaving of limb during swing phase.
- xliiiiiv Stride length varies from short to normal to overreaching.
- xliiiiiv Limb movements either hypermetric (exaggerated range of motion and excessive joint flexion) or hypometric (decreased joint flexion, "tin soldier" gait).
 - xliv Stepping on one foot with any other foot.
 - xliv Start with tail pull at rest to primarily assess lower motor neuron strength, as well as reaction of patient.
 - xliv As horse is walking, tail should be pulled strongly to one side. Normal horses can quickly correct rear limb position within a stride. If horse was normal at rest, but can now be easily pulled off balance, takes several strides to correct or interferes while correcting, this indicates upper motor neuron disease.
 - xliv When circling, outside hindlimb should remain under the horse's body. Centrifugal force will carry the limb away from the body (circumduction) with loss of proprioception.
 - xliv Normal horses should not pivot on inside limb when spun but should move and reposition it as needed.
 - xliv Horse should generally move contralateral limbs simultaneously.
 - xliv Elevation of head may exacerbate ataxia.
 - xliv Weave horse in serpentine pattern and look for any stumbling, interference, or circumduction.
 - xliv Walk on slope and/or over obstacles (curb, ground poles, cavaletti) to look for dysmetria, tripping, or other signs of ataxia.
 - xliv Perform on soft ground and with safe ability to remove blindfold. May unmask compensated vestibular disease.
 - l Pick up one forelimb and make horse hop away from you in circle to assess forelimb strength and proprioception.
 - li Normal strength and coordination.
 - lii Subtle mild neurologic deficits only noted under special circumstances (e.g., walking with head elevated or when circling).
 - liii Mild neurologic deficits apparent at all times/gaits.
 - liiii Moderate deficits at all times/gaits that are obvious to all observers regardless of expertise.
 - liiii Severe deficits with tendency to buckle, spontaneous stumbling, tripping, and falling.
 - liiii Recumbent, unable to stand.
 - liiii Attempting to identify the one or more locations of disease will help to narrow the differential diagnoses. When possible, attempt to localize all problems to when area. If unable to do so, disease is multifocal or diffuse.
 - liiii Predominant clinical signs with cerebral disease include behavior changes, seizures, blindness, and postural deficits.
 - liiii Predominant clinical signs with brainstem disease may include altered level of consciousness and cranial nerve signs.
 - liiii Clinical signs seen with cerebellar disease may include ataxia, intention tremors, and loss of menace in a visual horse.
 - liiii Location within the spinal cord will dictate which limbs are involved. Clinical signs may include proprioceptive deficits and ataxia (upper motor neuron) and/or weakness (lower motor neuron).
 - liiii Generally, UMN in all four limbs localizes to C1-C6. LMN in forelimbs with UMN in hindlimbs localizes to C6-T2. UMN in hindlimbs only localizes to T3-L3. LMN in hindlimbs only localizes to L4-S2.
 - liiii With peripheral nerve/lower motor neuron disease, weakness predominates.
 - liiii Gait abnormalities due to musculoskeletal disease (i.e., lameness) are usually regularly irregular, as opposed to the irregularly irregular gait abnormalities seen with ataxia.