The Role of the Veterinary Rehabilitation Nurse for an Orthopedic Exam

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Important Organizations for Physical Rehabilitation

- http://ivapm.org/ - Certified Veterinary Pain Practitioner
- http://www.rehabvets.org - AARV Technician Members Welcome
- http://vsmr.org/ - American College of Veterinary Sports Medicine and Rehabilitation

Websites
Rehabilitation Veterinary Technician

You will probably be the first person to speak with the client and their pet in the examination room.

Orthopedic Procedures

Take note of the patient's posture and behavior
Low Stress Examination Techniques

- Have toys and treats available for the patient
- Watch the patient’s body language
- DO NOT directly stand over a dog or reach out for it.
- Allow the patient to come to you (treats help)
- Allow a cat to willingly come out of a carrier
- Avoid direct eye contact
- Examine the pet where they are comfortable. For cats, this could be in a carrier with the top off, using towel wrapping techniques, on your lap, or on the floor.
- Dogs do not need to be on an exam table. They can be on the floor or small dogs can be on your lap.

Questions to ask the Owner about Lameness

- How long has the lameness been present?
- Has the lameness increased or decreased in severity?
- Is the lameness worse in the morning or evening?
- Was the limb subjected to some traumatic event?
- Does the lameness improve or worsen after a few minutes of activity, such as walking?
- Does the lameness change with weather or exercise?
- Have other limbs been involved?
- Have there been any previous related diagnoses or treatment?
- Can you describe the patient’s home environment (eg, stairs, types of flooring, bedding, and food)?
- What are your goals for the patient?

Rehabilitation Veterinary Technician Duties for the Orthopedic Exam

- Take a history from owner
- Review medical records of previous treatments that have been sent
- Identification of the correct limb is imperative. The owner should be asked to point to the correct limb.
- Identify progression of problem
- Medications administered should be recorded, along with the dose, dosing interval, length of treatment time, and whether or not the treatment was effective
- Owner’s impression of the degree of pain
The dog or cat should be carefully observed

- At rest
- At several gaits
- As it arises from a sitting or recumbent position

Tech Tips
- Often the lameness is more severe immediately after rising and then improves with ambulation.
- The patient may not use the affected limb at all to help rise to a standing position

Orthopedic Exam Procedures

- History
- Distant Observation
- Gait
- Standing Palpation – foreleg and rear limb
- Recumbent Examination – foreleg and rear limb

For the Orthopedic Examination

Using a consistent examination strategy is key to localizing the problem and planning further diagnostics.
Rehabilitation Veterinarian will perform the exam with the nurse assisting

- You record the information
- Force plate analysis, pressure mats and videotaping may be part of the examination.

History

- The patient’s age, gender, and breed should be recorded in the medical record.
- Signs of systemic disease: fever, anorexia, depression, vomiting, or diarrhea.
- Previous trauma
- Travel history
- General physical exam

Observe the patient at Rest

- Watch the patient lay down, sit up and finally stand
- Often the lameness is more severe immediately after rising and then improves with ambulation
- The patient may not use the affected limb at all to help rise to a standing position
- Muscle symmetry, limb position and palpation
Patient Observation

- Is the patient standing and holding a limb?
- Is the patient sitting with his or her back supported by a wall or the client?
- Is equal weight distributed on all limbs or is weight being shifted to one region?
- How does the patient get up off the floor? Does he or she need assistance?
- Does the patient seem stiff initially but get better with exercise?
- Is there supination or pronation, varus, or valgus of a limb?
- How does the patient move on the practice floor and outside?
- Where is the head positioned at a stance, walk, and trot? Does it bob up or down?
- Does the patient hold more to one side? Perform a standardized lameness grading system.
- Is the tail limp or taut to one side of the body?

Definitions

- **Abduction**: Limb movement away from the midline
- **Adduction**: Limb movement toward the midline
- **Circumduction**: Movement at a joint during which a bone or body segment outlines the surface of a cone or circle
- **Extension**: The limb reaching out, a digit elongated, the back arched dorsally, and the neck arched ventrally
- **Flexion**: The limb retracted or folded, a digit bent, the back arched dorsally, and the neck arched ventrally
- **Pronation**: Internal limb rotation
- **Rotation**: Cranial aspect of the limb rotating toward the midline
- **Side bend**: By the trunk or head
- **Supination**: External limb rotation

Valgus & Varus: Common deformities of many chondrodystrophic breeds that can be surgically corrected if caught early while growth plates are still open.

Goniometer

Assess objective measurements for joint motion with a goniometer, which quantitatively records joint angles in degrees using specific bony landmarks for each joint.
Gulick Tape Measure

- Assess muscle girth at standard anatomic sites using a tension tape device such as a Gulick tape measure.
- Tension tape measurements provide baseline information used to monitor progress or severity of muscle loss at the thigh and above and below the elbow.
- Take measurements weight bearing and non-weight bearing.

Gait Examination

The veterinary team must work together to assess a patient’s gait. Understanding normal gait patterns and proper handling techniques is critical before interpreting abnormal gaits or troubleshooting handler errors.

Common Gait Patterns - Walk

This is the slowest canine gait and the only one where the dog has 3 feet on the ground at times.
Amble
A gait pattern used when a dog is walking and speeding up gradually, giving the appearance of both limbs on the same side of the body moving together. As long as there are moments where 3 feet are on the ground, this gait is considered a fast walk that is normal, although not generally preferred. Dogs tend to use this gait when they are tired but want to move more quickly or when they are not fit enough to trot at a slow speed.

Trot
The trot, where the diagonal and rear limbs move forward and strike the ground at the same time, is the best gait to determine lameness and the only one where the contralateral limb never assists the forelimbs and pelvic limbs in weight-bearing. It is also slow enough for the experienced human eye to observe stride length and foot placement.

PACE
This gait is often seen when the ambling dog gradually speeds up; both limbs on the same side of the body move forward together so only 2 feet are on the ground, followed by a period of suspension. The pace is very inefficient because the center of gravity moves from side to side and the dog wastes effort centering the body instead of driving forward.
Canter
A complex gait that should not be mistaken for lameness; dogs use 2 different styles of canter, causing a rolling appearance, particularly when viewed from behind.

Gallop
Dogs use the power of their muscular, flexible spine, and abdomen, producing 2 moments of suspension.

Gaiting the Patient
- A controlled environment with no distractions will produce the most accurate movement analysis.
- With the patient on a loose lead, the handler should move in a straight line and refrain from looking at the patient and causing inadvertent disturbances.
- Assess gaits on a firm, non-slippery surface, and observe the patient from the side and from behind, and as he or she moves toward and away from the examiner, who should stand at a distance.
- The handler should walk and trot the patient by the observer at a constant speed.
- Depending on the patient, the client may be the best handler, but a veterinary technician is preferable.
Canine Gaits

Standing Palpation
With the animal standing, the examiner should carefully palpate and examine all of the major muscle masses of both forelimbs (as well as the rear limbs and spine).

Recumbent Examination
Careful palpation may be able to localize the problem to a particular limb and may be even more focused to a particular joint, bone or muscle group.
Lameness Grading

<table>
<thead>
<tr>
<th>Score</th>
<th>Degree of Lameness</th>
<th>Degree of Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stands and walks normally</td>
<td>No pain on joint manipulation</td>
</tr>
<tr>
<td>2</td>
<td>Stands with abnormal posture and walks without lameness</td>
<td>Mild discomfort on joint manipulation elicited at full flexion or full extension</td>
</tr>
<tr>
<td>3</td>
<td>Mild lameness when walking</td>
<td>Moderate discomfort on joint manipulation elicited at full flexion or full extension</td>
</tr>
<tr>
<td>4</td>
<td>Moderate lameness when walking</td>
<td>Severe discomfort on joint manipulation elicited at full flexion or full extension</td>
</tr>
<tr>
<td>5</td>
<td>Severe lameness when walking</td>
<td>Severe discomfort on joint manipulation elicited throughout full range of joint</td>
</tr>
</tbody>
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Orthopedic Examination in the Cat

- Orthopedic disease, particularly osteoarthritis (OA), is emerging as one of the most important disease conditions in cats, with some studies indicating a prevalence of up to 90% in cats.

- Much remains unknown about the etiology, prevention and treatment of feline orthopedic disease, and its recognition is often a challenge in the clinical setting.

Practical Relevance

- A focused, efficient orthopedic examination, including gait observation and palpation (awake and under sedation), supplemented with appropriate history, is key in ruling in, or out, clinically important musculoskeletal disease.
- Identifying problems assists in both developing a diagnostic plan and monitoring response to treatment.
Signs of Cats with Orthopedic Problems

• Ability to jump
• Height of jump
• Lameness
• Stiff gait
• Activity level of cats

• Decreased appetite
• Decreased grooming
• Behavioral change

Feline Musculoskeletal Pain Index

Gait Analysis in Cats

• The practice should identify an area that is free of hazards and will allow a cat to roam, off leash, away from other animals and behind closed doors that can stay closed until the examination is complete.
Test Your Exam Room First!

Cats will naturally seek out the least accessible place to hide – in this case, under a bank of rolling cages. It is well worth testing an examination room on some well-behaved staff cats first, to identify any potential problem areas.

What is Needed

- An experienced, cat-savvy veterinary technician or nurse assisting with the examination
- Blocking out enough time to allow an unhurried examination
- A small ‘obstacle course’ to encourage jumping, comprising a few lower objects (i.e., no more than about 12 inches/30 cm high), such as a closed box or footstool.
- Ask the owner bring along a few cat toys, particularly objects the cat likes to chase, can help to distract or motivate an anxious cat.

Watching Movement of Kitty Playing

One-year-old domestic shorthair cat chasing a laser pointer during the gait analysis portion of the orthopedic examination.
What To Do
The Rehabilitation Nurse will be assisting the Rehabilitation Veterinarian in this exam.

• Get kitty out of carrier – preferably allow them to walk out on their own
• Watch those first few steps out of carrier!!!!!
• Entice the reluctant cat to move with a toy or laser pointer
• See if kitty can jump or go through the small obstacle course.
• Try to compare joint flexion and extension angles while the cat is walking or navigating obstacles
• Videotaping the examination and playback in loop or slow motion will assist in this process.

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Cat Gait Video

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What to Look For

• Cats may unload or favor a painful limb, even at rest
• A cat with unilateral thoracic limb lameness may have a noticeable ‘head bob’, as seen in the dog, with the head going ‘down on the sound’ limb and up (thereby decreasing the load) on the affected limb
• Cats with bilateral thoracic limb or pelvic limb lameness may take short, choppy steps with the affected limbs and shift weight forward.
• Cats with unilateral pelvic limb lameness may have a hip hike (the hip will be elevated when the painful leg strikes the ground) or the tail may be used asymmetrically to shift weight towards the more normal side when the cat is in motion.
• A unilateral pelvic limb plantigrade stance may be consistent with an Achilles tendon rupture in the cat; a bilateral pelvic limb plantigrade stance may indicate neuromuscular weakness. Further examination will be able to differentiate the two.
Thoracic Limb Lameness in a Cat

Four-year-old domestic shorthair cat with a painful right thoracic limb. The cat is sitting with the weight shifted towards the pelvic limbs, and the right carpus and elbow are slightly flexed as more weight is shifted towards the left thoracic limb.

Standing palpation – What is Needed?

- Generally done on the floor or a table
- This is a one-person job, with the technician/nurse standing just out of the view of the cat but ready to assist if necessary.

What to do

- The cat and the examiner face the same direction
- All muscle groups for thoracic, pelvic limbs, all joints and spine are carefully palpated.
- Attention should be paid to flexion and extension of each joint, palpation of each large muscle mass, and deep palpation of the long bones.
- Each digit should be flexed and extended, and special attention paid to the pads and digits if the cat has been declawed.
Examine Flexion and Extension

Assessment of elbow extension. Note that the front half of the cat is supported.

Patella Examination – Right Side

Cat supported with the right limb suspended to allow palpation of the right patella.

Patella Examination – Left Side

Cat switched to examiner’s opposite hip to allow manipulation of the left patella.
Abduction of Hips in a Cat

Cats with OA of the hip resent hip abduction, sometimes more so than flexion and extension.

Postural Reactions

• Postural reactions should be examined
• Hopping should be examined

Feline Thoracic Limb Orthopedic Exam
Palpation in lateral recumbency
- The veterinary technician should step in and gently assist with restraint, as many cats resent being held in lateral recumbency.
- Examine the claws and digits from a better perspective and with a little more control than during the standing examination.
- Assessment of the cranial drawer test, the Ortolani sign (Best performed under sedation) and, if possible, measurement of joint angles.

Cranial Drawer Test
- Assessment of stifle instability (cranial drawer test) in the unsedated cat.
- Note the location of the examiner and the hand placement.

Sedated Examination in the Cat
- Very valuable in the cat.
- Excluded if cat is well-behaved or has a medical condition preventing sedation.
- Useful in a fractious cat that is difficult to examine while awake, but can still give a pain response (pulls the limb away, turns or vocalizes) when a diseased area is encountered, but does not respond to palpation of non-painful areas.
KEY POINTS

• Utilize the recently published AAFP/ISFM guidelines on feline-friendly handling to facilitate a positive environment.
• Identify a ‘cat safe’ room in the practice where the examination can be conducted.
• Do most of the examination with minimal to no restraint, with the cat standing.
• Don’t forget to assess the spine and look for neurologic disease.
• Utilize appropriate sedation as a regular part of the examination.
• Don’t rush the examination.

Questions

KEEP CALM AND ASK QUESTIONS