

PHYSICAL EXAMINATION OF DOGS AND CATS

GENERAL GUIDELINES

The physical examination is the most important practical skill for a clinician to develop. It can also be one of the most challenging. A good physical examination can detect minor abnormalities before they become serious problems as well as identify major organ dysfunction without extensive and expensive medical tests.

Careful pre-operative assessment is necessary for selection of appropriate anesthetic protocols. Many surgical and anesthetic complications are a result of pre-existing clinical conditions, most of which are associated with abnormalities that could have been identified by a skilled examiner and thorough exam. A good physical exam can point to many conditions and cause a change in anesthetic or surgical technique, monitoring, and support.

Learning to trust your physical exam skills can be challenging as technologic advances and the increasing availability of diagnostic equipment can lead to a reliance on these tools. It is important to remember that you may not always have the 'bells and whistles', whether due to availability or client resources.

While a thorough examination is completed at intake before an animal is vaccinated or admitted for surgery, every interaction you have with an animal should be used as an opportunity to assess her physical condition as parameters may change. With experience, this can be done quickly and easily

Be consistent and thorough

Examine the animal from head to tail, and be sure to check everything in between. Develop a consistent method and use it every time. Avoid the temptation to immediately focus on the most obvious complaint. The dog presented for limping might also have a life-threatening head injury. Perform a complete exam regardless of the presenting complaint.

Write it down

Record ALL results (both positive and negative) of your examination. Your colleagues will be using this information to evaluate and track the patient's condition. It is crucial that exam results are thorough and legible. Remember to sign the exam record so that the next person working with the animal can ask follow-up questions if necessary.

Back off

Don't forget to back up and examine the animal from a distance. Note how he or she walks, sits, breathes, etc.

Use restraint

It can be extremely difficult to safely restrain and adequately examine an animal at the same time. Be sure to have an assistant restrain her for a thorough exam. Remember, however, that sometimes the best restraint is light or moderate restraint, which decreases the amount of stress on the animal.

Say Hello

Remember to socialize yourself with the animal before abruptly starting the examination. Taking a few moments to develop a relationship with the animal will save time and stress later.

Learn from your experience

The more animals you examine, the more skilled you will become. Make a commitment to yourself to learn something new from every animal you examine. If you have ANY question as to whether a finding is abnormal or how to interpret an exam finding, consult a supervising veterinarian.

PHYSICAL EXAM ALERTS

When examining potential surgery patients, keep in mind that you are not only determining their general condition, but evaluating them for anesthetic and surgical risk factors as well. ANY physical exam finding that might impact anesthesia or surgery MUST be evaluated by a designated veterinarian or lead technician BEFORE the animal is admitted for surgery so that any potential risks can be discussed with the client before the animal is admitted. HSVMA-RAVS staff always reserve the right to decline surgery on any animal if we believe that there may be risk factors that can not be adequately evaluated.

Findings that require a designated supervisor's evaluation include:

- Any animal with TPR values outside the normal range
- Any animal older than 6 years of age or younger than 12 weeks of age
- Any animal weighing less than 5 lbs or more than 75 lbs
- Any animal with a history of diarrhea or vomiting
- Any animal with a history of recent trauma (past month)
- Any animal with significant abnormalities on physical exam (dehydration, heart murmur, upper respiratory infection, etc)

Abnormalities or findings that might impact anesthesia or surgery (e.g. age, physical condition, reproductive status (in heat, pregnant), etc) should be noted in the Alerts area of the Anesthesia Record and on the Surgery Board to alert the anesthesia team to the findings.

PHYSICAL EXAM PROCESS

- 1) Signalment / History
- 2) General Appearance / Initial Observations
- 3) Vital Signs
- 4) Physical Exam (Systems Approach or Head to Toe)
- 5) Surgical / Anesthetic Risk Assessment
- 6) RAVS Animal Condition (RAC) Score

Signalment

- Complete description of the animal
- Species, Breed, Age, Sex, Reproductive status, other distinguishing characteristics
- Always double-check client reported information (sex, age, etc)
- Keep this information in mind as you examine the animal and make clinical judgments.

History (Hx)- *(see Patient History Form)*

- Includes environment, diet, medical history, reproductive history, vaccination status and current medications.
- Description and history of chief/presenting complaint
- Reported concerns should be followed up with additional questions to clarify nature of the complaint

Important note on patient histories

Many of the animals that we treat in the field will be presented by caretakers who do not have extensive information on the animal's background or even daily observations. The animal may live outdoors or roam free much of the time, preventing the caretaker from making close observations. In order to obtain a useful history, it is important to phrase questions in such a way as to obtain the most accurate information possible. Asking, "Has the animal had diarrhea?" may prompt the client to answer "No", as they have not *observed* the animal to have diarrhea. Instead, asking "Have you seen the animal's stool recently?" will allow you to determine whether the client can provide an accurate description, or whether you may need to look to other physical signs for the information.

GENERAL APPEARANCE / INITIAL OBSERVATIONS (GA)

- **General appearance** – observe animal from a distance and up close before any handling
 - € Symmetry - note any asymmetry; note any difference in size or shape of extremities
- **Body condition** / State of nutrition (*see Purina Small Animal Body Condition Scoring chart*)
 - € Assign appropriate Body Condition Score using standard nine point scale (**BCS = 1-9**)
 - € In general, the animal is too thin if his ribs are easily seen, normal if they are readily felt without a layer of fat lying over them and obese if it is difficult to feel them at all
- **Mentation** / Level of consciousness – attentiveness / reaction to environment
 - € Alert and responsive – Depressed – Uncontrolled hyper-excitability – Stupor – Coma
 - € e.g: Normal healthy animal's mentation is often bright, alert and responsive or "BAR". A healthy puppy may be described as "active and playful," while a sick puppy may be "moderately depressed and inactive"
- **Posture and gait** - watch the animal walk to exam area or kennel.
 - € Look for limping, incoordination or unsteadiness and abnormal limb placement.
- **Hydration status** - (*see 'Assessing Dehydration' below*)
 - € Often expressed as percentage of body weight (0-15%) which can be fairly subjective.
 - € For our purposes hydration is reported as either '**adequate**', '**marginal**', or '**inadequate**'.
 - € Loss of the elasticity of the skin (skin turgor) is first sign of dehydration. Check the skin of the upper eyelid and the neck for tenting
 - € Signs of dehydration are more difficult to see in some animals. Skin may "tent" more in emaciated animals and certain breeds (e.g. Sharpei, Basset Hounds). Obese animals may not have skin tenting even when dehydrated.

VITAL SIGNS – Evaluated in relation to presenting complaint, history and current health status

- **Body Weight**
 - € All animals < 20 lbs should be weighed using a pediatric/small animal scale
 - € Any animal < 5 lbs or > 75 lbs must be examined by a staff veterinarian for surgery clearance
- **Temperature:** Via rectal thermometer
 - € **Normal: 100.5-102.5°F**
 - € Examine rectal area for signs of diarrhea, parasites or other abnormality.
 - € Any temperature < 99 °F or > 105 °F warrants immediate evaluation by a supervisor.
 - € A patient whose temperature is 103-104.5 °F, who is excited/overactive and has no other signs of infection/illness, may be conditionally accepted for surgery with instructions to retake the temp after allowing time to relax. If temp is down to < 103 °F, they can be cleared for surgery.
 - € Most animals will resist having their temperature taken. Complete the rest of the exam before obtaining a temperature to avoid agitating the animal and making examination more difficult.
 - € Do not struggle with an aggressive animal to obtain a temperature. If having difficulty taking an animal's temperature consult a supervising veterinarian or staff member.
- **Heart/Pulse rate**
 - € **Normal: K9: 80-160 bpm; Fe: 110-200 bpm**
 - € Evaluate pulse at femoral artery
 - Evaluate pulse rate, strength and quality (e.g., strong, weak, thready, bounding)
 - Compare both sides and heart rate: pulse rate < heart rate = pulse deficit → consult DVM
- **Respiratory rate and character**
 - € **Normal: K9: 15-30 bpm; Fe: 20-40 bpm**
 - € RR determined visually or by auscultation. Count either inspirations or expirations.
- **Perfusion Indicators** - (*see 'Assessing Mucous Membrane Color' below*)
 - € **Mucous membrane color (MM)**-provides indication of the blood flow to peripheral tissues.
 - Any abnormal mucous membrane color should be brought to the attention of a supervisor
 - € **Capillary refill time (CRT)** - reflects perfusion of peripheral tissues
 - Press on an area of mucous membrane. The gums will "blanch" white as they are pressed and become pink again when pressure is released.
 - **Normal: < 2 seconds**
 - Prolonged CRT (> 2 seconds) may indicate compromised circulation due to cold, shock, cardiovascular disease, anemia or other causes and must be further evaluated by a supervisor before admitting the animal for surgery.

SYSTEMS OR HEAD TO TOE EXAM

Head and Neck (EENT/Mouth)

- Compare both sides of **face and head** for symmetry.
- Assess **eyes** for size, position, discharge – lids, conjunctiva, sclera, pupil, cornea, lens
 - € Note discharge, inflammation, redness, uneven/abnormal pupil size, corneal clouding, squinting
- Evaluate **nose and nares** for symmetry, conformation, and evidence of discharge
 - € Classify discharge: (serous, purulent, hemorrhagic, mucoid or mucopurulent)
- Examine **oral cavity** - lips, mucous membranes, teeth, hard and soft palate, tongue, pharynx, tonsils
- Evaluate carriage and position of **ears**, thickness/malleability of pinnae and cleanliness of ear canals
- Palpate the **submandibular lymph nodes**
- Palpate **salivary glands** (normally palpable), **larynx and thyroid gland** (not normally palpable)
- Palpate the **trachea** – note coughing, swelling,

Trunk and Limbs (INTEG, M/S, PLN)

- Inspect **body** for symmetry, masses, tenderness, etc.
- Palpate each **limb and joint**: Note abnormalities in angulation, deformities, swelling, bleeding, bony protrusions, obvious fractures or joint luxations, range of motion, atrophy, knuckling, crepitus, etc.
 - € Assess all limbs in weight-bearing and non-weight-bearing positions
 - € Note the condition of the **feet, nails or hooves**
- Evaluate **muscle mass and tone**
- Examine **skin and haircoat** for alopecia, masses, parasites, dryness, excessive oil, matting, etc.
 - € Include identification of **ectoparasites** (fleas, ticks, lice)
 - € Given the high incidence of mange in many of the communities RAVS serves, animals exhibiting clinical signs of sarcoptes (generalized alopecia, intense pruritis) are generally treated with ivermectin according to the appropriate protocols. Skin scrapings can be performed if warranted and time/resources permit.
- Palpate **pelvic region** for conformation and symmetry
- Palpate **vertebral column** to assess for deviations and pain
- Palpate **peripheral lymph nodes** (PLN): submandibular, prescapular, axillary, inguinal and popliteal
 - € Normal lymph nodes should be firm, and freely moveable. Enlarged or asymmetric lymph nodes may indicate a local or systemic infection, allergy or neoplastic disease
 - € Normally palpable: submandibular, prescapular, popliteal, inguinal (prescapular and inguinal can be difficult to locate in small or overweight animals). Not normally palpable: axillary

Thorax

- Observe and palpate the **thorax** for conformation, symmetry, masses, etc.
- **Cardiac auscultation (CV)**
 - € Palpate the area between the fourth and sixth intercostal spaces on both sides of the thorax for the **point of maximum intensity** (PMI) of the heartbeat and any cardiac thrills.
 - € Evaluate **heart rate** (HR) and **rhythm** (count beats for 15 seconds and multiply by 4)
 - € Normal heart sounds:
 - 'Lub-Dub' = Should be a short time gap between heart sounds
 - S1 = loud, long, low pitch (closure of AV valves) ; S2 = closure of semilunar valves
 - € Abnormal heart sounds:
 - Arrhythmia = e.g. sinus arrhythmia, atrial fibrillation, heart block, premature ventricular contractions, gallop rhythm (three or four sounds instead of two)
 - Sinus arrhythmia = Slight increase in heart rate during inspiration and decrease with expiration. Normal finding. More common in the dog than in the cat.
 - Murmur (*see 'Evaluating Heart Murmurs' below*)
 - Prolonged series of audible vibrations during normally silent part of cardiac cycle.
 - Often heard as a soft, swooshing sound.
 - Murmurs are described on basis of location, timing, duration, character and grade
 - Muffled heart sounds may be a result of fluid in the chest – if having difficulty hearing the heartbeat do not assume it is just you – it never hurts to get a second opinion.

- € Auscult the heart in multiple locations on both the right and left sides of the chest. A heart murmur or other abnormality may go undetected unless each valve is ausculted independently.
- € Locations to auscult specific heart valves:
 - Left 4th-6th (PMI) = intercostal space just above the sternal border = mitral valve
 - Left 2nd-4th intercostal space above sternal border = pulmonic valve
 - Left 3rd-5th intercostal space at mid thorax = aortic valve
 - Right 3rd-5th intercostal space at mid thorax = tricuspid valve
- € *Any doubts or concerns about an animal's cardiovascular status or the presence of a murmur or arrhythmia should be brought to the attention of a supervising veterinarian.*

▪ **Respiratory auscultation (RESP)**

- € Listen for noisy breathing at mouth and nares without stethoscope, then auscult at least four different areas of the chest, including right and left ventral and right and left dorsal lung fields.
- € **Respiratory Rate (RR)** – assess visually or auscult and count breaths per minute
- € **Depth / Effort** – watch degree of chest movement (normal, shallow, deep)
- € **Character** – note sounds and any difficulty on inspiration and/or expiration
 - Normal respiratory sounds: vesicular / bronchial (soft, breezy/rustling sounds)
 - Abnormal lung sounds:
 - ‘Wheezes’ (continuous high pitched hissing heard more often on expiration) - occur with small airway diseases such as asthma
 - ‘Rales/crackles’ (course to fine - discontinuous, nonmusical, brief sounds heard more commonly on inspiration) – may be heard when fluid in the lungs
 - ‘Rhonchi’ (musical sounds-low or high pitched) or
 - ‘Wheezes’(continuous high pitched hissing heard more often on expiration)
 - ‘Dull’ lung sounds may indicate pneumonia, or consolidation
 - Absence of breath sounds may indicate pleural space disease (pleural effusion) or space-occupying lesions
- € Changes may be associated with location of respiratory system disease
 - Loud breathing = large airway disease (nasal passages, trachea, larynx/pharynx)
 - Inspiratory noise or difficulty = extra thoracic airway disease (esp. the larynx)
 - Expiratory noise or difficulty = intrathoracic tracheal disease
 - Rapid/shallow breathing = pleural space disease (fluid or air)
 - Difficulty breathing on both inspiration and expiration = lung disease.
- € Signs of respiratory distress (dyspnea) will change as disease progresses.
 - First sign usually change in respiratory rate.
 - Next a change in respiratory rhythm and character (depth).
 - Posturing is a very late sign of respiratory disease: may be standing or sitting with back arched, neck extended, and elbows out and will be reluctant to lie down.
 - Other signs include exaggerated chest or abdominal movements on inspiration, open-mouth breathing and flared nostrils. In extreme cases the animal may become cyanotic
- € *Any abnormal lung sounds or perceived abnormalities in respiratory rate or effort should be further evaluated by a supervising veterinarian.*

Abdomen (ABD)

- **Inspect** for distention, deformity, displacement, symmetry, and bruising
- **Auscultate** abdomen to detect intestinal hypermotility or hypomotility
- **Abdominal palpation**
 - € Using 1 or 2 hands, begin at the spine and move ventrally, allowing the abdominal viscera to slip through the fingers. Repeat throughout abdomen, noting organ size and location and the presence of, fluid, gas, fetuses, masses or feces. Note any pain or guarding of the abdomen.
 - € General identifications:
 - Cranial abdomen – stomach, liver, spleen, area of pancreas, small intestine
 - Mid-abdomen – spleen, kidneys, small intestine
 - Caudal abdomen – urinary bladder, prostate, uterus, colon, small intestine

€ Notes on Specific Organs:

- Stomach: If animal has recently eaten, may be palpable behind ribs to mid-abdomen
- Liver: edges normally sharp and well defined (non-palpable in most patients)
- Small intestines: masses, foreign bodies, pain on palpation
- Kidneys: Right more cranial than left (usually not palpable in K9)
- Bladder: Pear-shaped in dog, spherical in cat

External Genitalia and Perineum

- Always **verify sex and reproductive status** – don't assume client has provided accurate info
- Inspect **perianal area** for hair mats, hernias, feces, masses and evidence of discharge
- In dogs - palpate for impacted or abscessed anal sacs

Male

- Inspect **prepuce and penis**-noting any discharge, inflammation, tumors
- Expose penis and look for masses and evidence of trauma, note any color abnormalities
- If intact – inspect both **testicles** for symmetry, size, location (both descended) and conformation

Female

- Palpate and visually assess **mammary glands** for tumors, cysts, swelling, heat or discharge
- Inspect **vulva** for size, inflammation, discharge (blood, pus), polyps, tumors or structural defects

Note – External Parasites: Evidence of parasitism should be recorded during the physical exam in association with the relevant body system. In addition, in order to obtain community animal health data the physical examination form includes a separate area to record parasites identified.

RAVS ANIMAL CONDITION (RAC) SCORE: Before completing your examination, you will need to determine the appropriate RAC Score for the animal. The RAC Score is being assessed as part of a research project on animal health in rural communities. Details on the RAC score can be found in the appropriate training section (*see Patient Assessment Scores*).

SURGICAL / ANESTHETIC RISK FACTORS: Before developing a treatment plan and approving the patient for surgery, any potential history, signalment or clinical findings that may impact anesthesia or surgery should be considered and discussed with a supervising veterinarian. Additional pre-anesthetic work up may be required to determine whether the patient will be accepted for surgery. It is important to record this information clearly and accurately for the benefit of the anesthetists and others who may handle the patient later.

REVIEW / RECORD FINDINGS: At the end of your exam, take a moment to review your notes and be sure that you have covered everything. If at any time you identify a problem that you feel is an emergency, immediately notify a veterinarian. Any significant abnormalities should be evaluated by a veterinarian prior to the animal being admitted for surgery or released. The evaluating veterinarian should record their findings in the appropriate section of the exam record.

Use descriptive, factual language when describing your physical exam findings. If you are making an educated guess, distinguish that from something you know for certain. This helps prevent you from going down the wrong track prematurely. Once a diagnosis has been written down, it is surprisingly hard to remain open to other possible explanations. At this stage, it's best to remain open to all possibilities.

APPENDIX- PHYSICAL EXAMINATION

PHYSICAL EXAM / TREATMENT RECORD

Species: Canine / Feline **Sex:** Male / Female

Age: _____ (0-4 mos = pediatric) / (4-6 mos) / (6-12 mos) / (1-3 yrs) / (4-6 yrs) / (6-10 yrs) / (>10 yrs)

Previous medical history / Recent illness/injury: _____

Behavior: Gentle / Social Fearful / Possible Caution Aggressive / Feral

PHYSICAL EXAM

Examined by: _____ time: _____

Wt _____ lb Temp _____ °F Pulse _____ bpm Resp Rate _____ bpm MM/CRT _____ / _____

BCS (1-9): _____ Hydration (adequate/ marginal/ inadequate): _____ Mentation: _____

- GA _____
- INTEG _____
- EENT _____
- CV _____
- RESP _____
- NERV _____
- M/S _____
- ABD/GI _____
- GU _____
- PLN _____

Addl Comments: _____

External Parasites: None Fleas or flea dirt Ear mites Ticks: 1-10 / > 10
Mange -- Sarcoptes / Demodex -- Dx based on: Clinical signs / Microscopic ID

RAVS Animal Condition Score: Excellent Good Fair Poor Critical

Reason for RAC Score assigned: _____

Examined by veterinarian / staff technician? DVM/RVT: _____ time: _____

DVM/RVT Notes: _____

Abbreviations: Some commonly used medical abbreviations to describe physical exam findings include:

TPR: Temperature, pulse and respiratory rate

BAR: Bright, alert and responsive (responsive animal who is aware of their surroundings –not acting sick)

QAR: Quiet, alert and responsive (still aware, but not as happy/active)

GA: general appearance

NERV: nervous

INTEG: integument

ABD: abdomen (gastrointestinal / genitourinary)

EENT: eyes, ears, nose, throat (and mouth)

PLN: peripheral lymph nodes

CV: cardiovascular

RESP: respiratory

BCS: Body Condition Score (1-9)

M/S: musculoskeletal

RACS: RAVS Animal Condition Score

OS: Left eye

OD: Right eye

OU: Both eyes

AS: Left ear

AD: Right ear

AU: Both ears

d/c: discharge

v/d: vomiting/diarrhea

c/s: coughing/sneezing

Helpful hint: The abbreviations “S” for left and “D” for right date back to the days when left handed people were considered **S**inister while right handed people were admired for their **D**exterity. The “U” can be thought of as standing for **U**niversal ☺.

Assessing Dehydration:

0-5%	Adequate	No abnormalities seen – skin immediately returns to normal position after tenting, CRT normal, eyes normal, mucous membranes pink and moist
5-8%	Marginal	Slight delay (2-4 seconds) in return of the skin to normal position, slight increase in CRT (2 sec), eyes slightly sunken in sockets, mucous membranes slightly dry or tacky
8-10%	Inadequate	Obvious delay (5-10 seconds) in skin returning to normal position, increased CRT (2-2.5 sec), eyes sunken in sockets, mucous membranes dry, slightly tacky
10-12%		Skin remains tented (10-30 seconds), CRT increased dramatically (3+ sec), eyes very sunken, dry mucous membranes, animal is depressed, may see signs of shock (cool extremities, rapid/weak pulse, tachycardia)
12-15%		State of shock, death is probable

Assessing Mucous Membrane Color

Color	Interpretation	Possible Causes
Pink	Normal	Adequate perfusion/oxygenation of peripheral tissues
Pale or White	Anemia, poor perfusion, vasoconstriction	Blood loss, shock, decreased peripheral blood flow
Blue (cyanotic)	Inadequate oxygenation	Hypoxemia
Brick Red	Increased perfusion, Vasodilation	Early shock, sepsis, fever, systemic inflammatory response syndrome
Yellow (icteric)	Bilirubin accumulation	Hepatic or biliary disorder and/or hemolysis
Brown	Methemoglobinemia	Acetaminophen toxicity in cats, intravascular hemolysis
Petechiae (red splotching)	Coagulation disorder	Platelet disorder, DIC, coagulation factor deficiencies

Evaluating Heart Murmurs

Description of Heart Murmurs
<p>Location: Usually the valve area over which the murmur is loudest = Aortic / Mitral / Tricuspid / Pulmonic May also be described in relation to chest structure (e.g. sternal border)</p> <p>Timing: The part of the cardiac cycle during which the murmur is heard = Systole / Diastole / Continuous</p> <p>Duration: Refers to the duration within cardiac cycle murmur is heard = Early systole/ Holosystolic/ Diastole</p> <p>Character: The quality of the murmur</p> <ul style="list-style-type: none"> -Plateau or regurgitant type (same sound for the duration of murmur) -Decrescendo, crescendo, crescendo-decrescendo or ejection type (intensity changes throughout duration of murmur) -Machinery (heard throughout systole and diastole) -Decrescendo or blowing <p>Grade: Loudness. Subjective assessment, does not necessarily indicate degree of cardiac dysfunction</p> <p>1/6 – Can only be heard in quiet room after several minutes of listening</p> <p>2/6 – Can be heard immediately, but is very soft</p> <p>3/6 – Low to moderately intense</p> <p>4/6 – Loud, but without a palpable thrill</p> <p>5/6 – Loud, with a palpable thrill</p> <p>6/6 – Can be heard with the stethoscope slightly off the thoracic wall</p>