

Improving Range of Motion, One Step at a Time

This study examined the difference between thoracic limb joint range of motion (ROM) during walking and trotting on a level surface as compared with ascent on stairs or ramps of equal inclination. Eight healthy dogs were evaluated for thoracic limb joint motion in a sagittal plane during jogging and walking up standard stairs. Kinematic analysis was performed using a 2-D capture system that



allowed digital, infrared cameras to assist with imaging. Results indicated that normal dogs achieve greater overall thoracic limb joint ROM while ascending stairs and ramps versus a flat surface. ROM was greatest while ascending a ramp when compared with stairs. This differed from previous reported data that suggested thoracic limb motion on an incline did not differ significantly from that on a flat surface. Overall, a ramp or stair ascent may elicit greater ROM of the thoracic limb when compared with trotting over ground. This is useful when developing physical rehabilitation protocols following surgery or trauma.

■ Commentary

Physical rehabilitation is useful for thoracic and pelvic limb trauma, surgery, or lameness. Although physical rehabilitation has been commonplace in veterinary medicine for the past 10 years, many areas in the United States have difficulty finding facilities that can support each patient's individual needs. Evidence-based exercises encourage clients to perform manual rehabilitation in the home setting, as well as through a licensed therapist.—*Heather Troyer, DVM, DABVP, CVA*

■ ■ Source

Exercises in canine physical rehabilitation: Range of motion of the forelimb during stair and ramp ascent. Carr JG, Millis DL, Weng HY. *J SMALL ANIM PRACT* 54:409-413, 2013.

Rivalta Test for FIP Diagnosis

This study aimed to calculate sensitivity, specificity, and positive and negative predictive values (PPV, NPV, respectively) of the Rivalta test for feline infectious peritonitis (FIP). The Rivalta test relies on the formation of a precipitate when a fluid sample from an effusion is added to acetic acid.

Of 851 cats with effusions, 782 had conclusively positive or negative Rivalta test results; definitive diagnosis was reached in 497. Prevalence of FIP in cats with effusion and positive Rivalta test results was 34.6%—lower than the 41%–51% previously reported. Increased effusion-specific gravity and cholesterol concentration, decreased serum albumin:globulin, and hyperbilirubinemia positively correlated with positive Rivalta test results. The components of effusion that lead to a positive

Rivalta test are unknown. The Rivalta test had a sensitivity of 91.3%, specificity of 65.5%, PPV of 58.4%, and NPV of 93.4% for FIP diagnosis. Sensitivity, specificity, and PPV were lower than values previously reported except when considering populations of cats ≤ 2 years of age. Values also increased when cats with lymphoma or bacterial infections were excluded.

Although sensitivity was lower than previously reported, it is high enough to be a useful diagnostic aid. In particular, NPV is excellent, so FIP is unlikely as a cause for effusion in cats with negative Rivalta tests.

■ Commentary

For FIP diagnosis, many European countries rely on the Rivalta test. Although it is a simple in-clinic test, it does not add any significant information to that which one may receive from determining a high pro-

tein level using a refractometer \pm cytology. Its use should be limited to clear fluids, and it is most accurate in cats < 2 years of age. Its value may be in its high NPV (ie, if a negative Rivalta result is found on a clear cavity fluid, FIP is highly unlikely). Serum albumin:globulin ratios < 0.45 with peripheral lymphopenia, lack of toxic change in neutrophils, and high fluid protein are highly suggestive in the diagnostic puzzle of FIP.—*Margie Scherk, DVM, DABVP (Feline)*

■ ■ Source

Diagnostic accuracy of the Rivalta test for feline infectious peritonitis. Fischer Y, Sauter-Louis C, Hartmann K. *VET CLIN PATHOL* 41:558-567, 2012.

MORE ►