

Bioarth FUNCTIONAL EVALUATION SCALE

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INTRODUCTION

Functional evaluation scales are widely used in human medicine but this is not so in veterinary medicine. Even if there are some scales available, like the "Functional Questionnaire" from Alameda East Veterinary Hospital,^[1] none have been validated to objectively determine functional limitation in dogs.

Our functional evaluation scale is meant to be a useful tool for evaluating different problems that affect the elbow, hip or knee joints by means of a tidy and systematized scoring system. The scale must be performed by a specialized veterinarian or physiotherapist. A scoring system has been set (from 0 to 3 or from 0 to 2 depending on the case) for each of the 12 parameters to be examined. After this evaluation we will get to know the state of the three basic testing parameters: functional limitation, articular mobility and degree of muscular atrophy.

FUNCTIONAL LIMITATION

We try to evaluate the functional limitation of the affected articulation by means of a scoring system that quantifies the changes of posture, lameness and behaviour when the dog is walking and playing (score number 5 and 6 can be answered directly by the owner). It is advisable to have at your disposal a long flight of steps in order to be able to check scores 7 and 8.

1. Changes standing still: (fig1)

- (0) Standing normally
- (1) Leaning on one side
- (2) Resting the tip of its paw
- (3) Non weight bearing on that limb

2. Changes standing up:

- (0) Standing up normally
- (1) Adopting different positions when standing up
- (2) Difficulty to rise
- (3) Does not stand up

3. Lameness at the beginning of exercise:

- (0) No lameness present
- (1) The lameness disappears when the dog moves (up to 10 minutes)
- (2) The lameness does not disappear

4. Lameness after warm-up (10 minutes):

- (0) No lameness present
- (1) Mild lameness
- (2) Severe lameness
- (3) Continuous non-weight-bearing lameness

5. Lameness during the walk: (fig2)

- (0) It can walk without difficulties
- (1) It often stops while going for a walk
- (2) It can take just very short walks (less than 5 minutes)
- (3) It does not want to go for a walk

6. Lameness while running and playing: (fig3)

- (0) It can run and play without difficulties
- (1) It runs and plays with difficulties or it gets tired easily
- (2) It runs with lots of difficulties under a stimulus
- (3) It neither runs nor plays under any stimulus

7. Going down the steps: (for elbow exam)

- (0) It goes down without difficulties
- (1) It goes down 16 steps (a flight) (fig4) with difficulty
- (2) It goes down 1 or 2 steps either a kerb with difficulty
- (3) It does not go down the steps

8. Small jumps 40-50 cm. (for elbow exam) (fig6)

- (0) It gets off the sofa or out the car without difficulties
- (1) It gets off the sofa or out the car with difficulty
- (2) It neither gets off the sofa nor out the car

7. Going up the steps: (for hip or knee exam)

- (0) It goes up without difficulties
- (1) It goes up 16 steps (a flight) with difficulty
- (2) It goes up 1 or 2 steps either a kerb (fig5), with difficulty
- (3) It does not go up the steps

8. Small jumps 40-50 cm. (for hip or knee exam) (fig7)

- (0) It gets on the sofa or on the car without difficulties
- (1) It gets on the sofa or on the car with difficulty
- (2) It neither gets on the sofa or on the car



TOTAL SCORE OF FUNCTIONAL LIMITATION

RANGE OF MOVEMENT

The goniometer is the basic instrument used to measure the range of motion of the joints (fig8). In canine medicine there are evidences of both its diagnostic value and in the validation of radiographic findings.^[2]

9. Manual mobilization produces:

- (0) No pain and no crepitation
- (1) There is pain on the last stages
- (2) There is pain and/or crepitation during the process
- (3) It cannot be carried out or there is severe pain and crepitation

10. ROM in flexion: (for elbow exam)

- (0) Total flexion 20-40°
- (1) Mild limitation <60°
- (2) Severe limitation >60°

11. ROM in extension: (for elbow exam)

- (0) Total extension 160-170°
- (1) Mild limitation >150°
- (2) Severe limitation <150°

10. ROM in flexion: (for knee exam)

- (0) Total flexion 40-50°
- (1) Mild limitation <70°
- (2) Severe limitation >70°

11. ROM in extension: (for knee exam)

- (0) Total extension 160-170°
- (1) Mild limitation >150°
- (2) Severe limitation <150°

10. ROM in flexion: (for hip exam)

- (0) Total flexion 50-60°
- (1) Mild limitation <80°
- (2) Severe limitation >80°

11. ROM in extension: (for hip exam)

- (0) Total extension 160-170°
- (1) Mild limitation >150°
- (2) Severe limitation <150°



TOTAL SCORE OF THE RANGE OF MOVEMENT

MUSCLE ATROPHY

For the good carrying out of the evaluation it is important to use a tape measure in order to compare the affected extremity with the contralateral limb, as long as it is not affected, otherwise we would focus on the clinical experience.

12. Muscular atrophy:

- (0) There is no muscular atrophy
- (1) Mild atrophy
- (2) Severe atrophy

TOTAL SCORE OF MUSCLE ATROPHY

CONCLUSION

This scale tries to establish a system to examine the functional limitation in dogs objectively. The aim is to become a useful tool for complementing both the initial evaluation of the patient and its functional evolution and in no case should it become a substitute for other diagnostic methods.

[1] Millis D. et al. Canine Rehabilitation and Physical Therapy. Saunders. 2004

[2] Jaegger G, Marcellin-Little DJ, Levine D: Reliability of goniometry in Labrador Retrievers. American Journal of Veterinary Research 63:979-986:2002