Comparison of different Clinical Metrology Instruments in dogs with osteoarthritis

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GOALS:

To test construct and criterion validity of four Clinical Metrology Instruments (CMI) in dogs with bilateral hip osteoarthritis.

MATERIALS AND METHODS:

Fifty police working dogs were evaluated, using a stance analyzer in six different moments, over a 180-day period;

Weight-bearing symmetry index and deviation from normal weight-bearing were calculated and used as criterion validity¹;

Three hundred responses to the Canine Brief Pain Inventory (CBPI, divided in pain severity score - PSS and pain interference score - PIS, the Liverpool Osteoarthritis in Dogs (LOAD), the Canine Orthopedic Index (COI, with four domains: stiffness, gait, function and quality of life - QOL) and the Hudson Visual Analogue Scale, were compared;

Correlations between CMIs were evaluated as construct validity. Internal consistency was tested with Cronbach's α ¹.

Fig. 1 – Scatterplot of LOAD and HVAS.

RESULTS:

Significant weak correlation was found between all CMIs and stance analysis symmetry index measure and deviation, indicating criterion validity;

Cronbach's α was 0.80 for HVAS, 0.98 for CBPI, 0.97 for LOAD and 0.98 for COI;

HVAS showed a negative correlation with all other scores, particularly PSS (-0.81) and PIS (-0.83);

PSS and PIS showed a good correlation with all other scores, particularly LOAD (0.80 and 0.82) and COI (0.80 and 0.82).

LOAD scores had high correlation with all scores, especially COI (0.91);

COI dimensions showed good correlation comparing one to another.

Fig. 2 – Scatterplot of LOAD and COI.

CONCLUSIONS:

We presented criterion and construct validity of these CMIs, which are able to capture various dimensions of OA.

REFERENCES:

1 - Walton MB, Cowderoy E, Lascelles D, Innes JF. Evaluation of Construct and Criterion Validity for the 'Liverpool Osteoarthritis in Dogs' (LOAD) Clinical Metrology Instrument and Comparison to Two Other Instruments. Wade C, ed. PLoS One. 2013;8(3):e58125.

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