

Sensitivity and Specificity of a Weight Distribution Platform for the Detection of Objective Lameness and Orthopaedic Disease



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Introduction: Weight distribution and off-loading at the stance are commonly used subjective assessments during the orthopaedic examination. The clinical relevance, sensitivity and specificity of limb off-loading have not yet been established. The aim of the study was to assess off-loading on a weight distribution platform (WDP) and determine the sensitivity and specificity at various cut-off points for the detection of objective lameness (OL) and orthopaedic disease (OD).

Materials and Methods: The total pressure index was used to determine OL on a pressure-sensitive walkway (PSW). Normal weight distribution on both the PSW and WDP was considered 30/30/20/20. A total pressure index standard deviation of 2 was used. The sensitivity and specificity of the WDP for the identification of OL and OD was determined at cut-off points 1 to 6 below normal weight distribution values.

Results: All patients in the study (n = 50) had confirmed OD. The PSW identified 36/50 (74%) patients as OL; these were deemed to be OL for sensitivity and specificity analysis of WDP data. At cut-off point 1, the WDP had the highest sensitivity for OD (84%) and OL (97%). At cut-off point 6, the WDP had the highest specificity for OD (98%) and OL (98%). The highest combination of sensitivity and specificity for both OD (1.65) and OL (1.80) was at cut-off point 2.

Conclusion: The WDP provided the highest combined sensitivity and specificity at cut-off point 2 below the normal value for the detection of both OL and OD.

Companion Stance Analyzer used in study.

