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ESTIMATION OF REPEATABILITY OF ELASTOGRAPHY IN THE ASSESSMENT OF EQUINE METACARPAL FLEXOR TENDONS AND SUSPENSORY LIGAMENT

Introduction: ultrasound elastography is an ultrasound-based method which allows qualitative and quantitative evaluation of mechanical properties of tissue. Mostly used in human medicine, this technique has recently raised interests in veterinary medicine, leading to studies on its application in horses ^(1;2).

Aims of the study: 1) estimating the inter- and intra-operator repeatability of compression elastography in the evaluation of equine non-pathologic metacarpal flexor tendons and suspensory ligament; 2) evaluating the repeatability of the technique between experienced and not experienced operators; 3) performing a qualitative analysis of the elastographic appearance of equine flexor tendons and suspensory ligament in two performing modalities (horse in standing position with or without using the stand-off pad).

Materials and methods: longitudinal images of the flexor tendons and suspensory ligament were obtained by six operators (three experienced, three not experienced) in both performing modalities. A qualitative assessment of images was performed using a previously described grading system (1). Inter- and intra-operator repeatability were evaluated for each anatomical structure, in both performing modalities.

Results: intra- and inter-operator repeatability was obtained in only few cases and doesn't seem to be due to the operator's experience. The appearance of tendons in the elastogram changes in dependence of the performing modality, appearing the superficial digital flexor tendon "soft" (red) for every operator if the stand-off pad was not used and "blue/green" (intermediate) when the stand-off pad was used.

Conclusion: it is not possible to state that compression elastography is a surely repeatable technique. More studies are requested to standardize and make more objective this technique in its application to the equine medicine for the evaluation of the metacarpal tendons.

References

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- 2 Ellison ME, Duenwald-Kuehl S, Forrest LJ, Vanderby R Jr, Brounts SH. Reproducibility and feasibility of acoustoelastography in the superficial digital flexor tendons of clinically normal horses. *Am J Vet Res* 2014; 75:581-7.