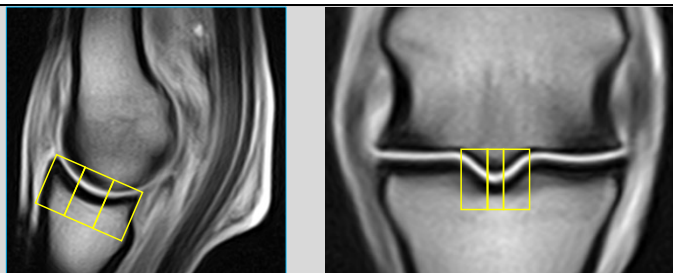


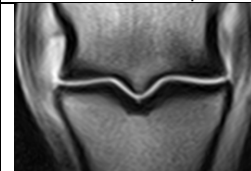
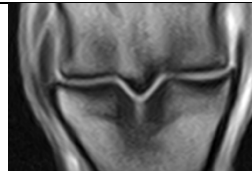
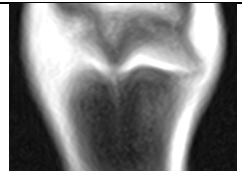

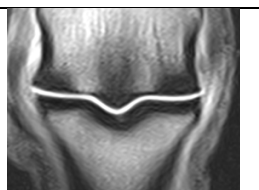

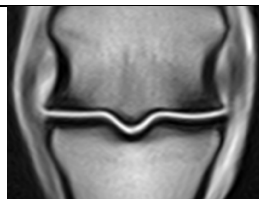

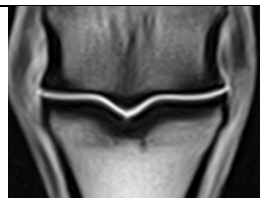

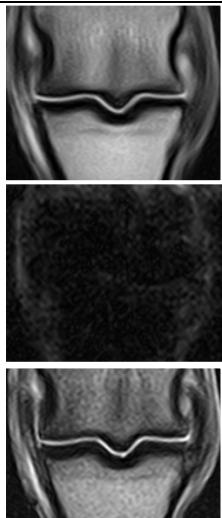
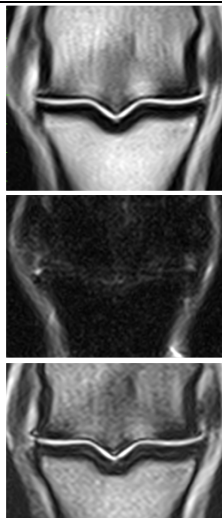
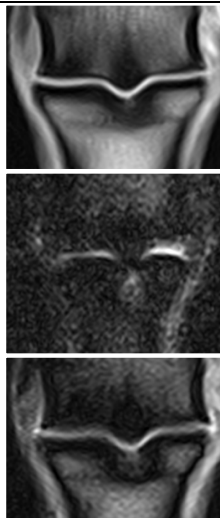
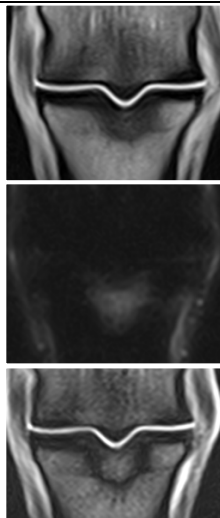
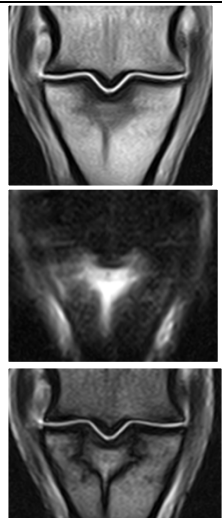


Supplementary file S2:

Visual guide to MRI semi-quantitative grading scheme for sagittal groove disease of the proximal phalanx

Proximal phalanx: sagittal groove						
3 subregions - dorsal, middle and palmar/plantar thirds						
Locations categorised as lateral sloping parasagittal zone, mid-sagittal zone and medial sloping parasagittal zone						
Criteria	Description	Grading				
Subchondral bone defects	An interruption of the subchondral bone	0 = Absent Smooth and regular chondro-osseous junction	1 = Minor indentation or irregularity of the chondro-osseous junction Shallow and/or visible in one slice	2 = Microfissure (≤ 3mm length) Proximodistally-oriented, narrow, linearity extending from the chondro-osseous junction and not exiting the distal aspect of the subchondral bone plate	3 = Short macrofissure (>3mm and <15mm length) Proximodistally-oriented, narrow, linear defect extending through the (thickened) subchondral bone plate and trabecular bone	4 = Long macrofissure/fracture (≥15mm length) Proximodistally-oriented, narrow, linear defect extending through the (thickened) subchondral bone plate and trabecular bone
						
		Location categorised as: Mid-sagittal with proximodistal orientation, originating at the lateral margin of the mid-sagittal zone and/or with a distolateral oblique component, originating at the medial margin of the mid-sagittal zone and/or with a distomedial oblique component, lateral parasagittal, medial parasagittal. Configuration categorised as: Unipartite (singular lesion), tripartite (three parallel dorsopalmarly/plantarly ± proximodistally oriented lines, typically two hyperintense lines flanking a hypointense line, similar to the “chromosome-like” appearance as described on CT [1]). Examples shown (L to R) of mid-sagittal (unipartite), mid-sagittal (tripartite), oblique component.				
Size measured (proximodistal x dorsopalmar/plantar x mediolateral) (mm) on T1 GRE sequences where possible, values <1mm entered as 1mm						

Subchondral demineralisation	Regions within the subchondral bone plate which are hyperintense on all sequences	0 = Absent	1 = Unipartite Single site	2 = Tripartite/ "chromosome-like" [1] Two hyperintensities separated by hypointensity	* Suspected osseous cyst-like lesions included in category and noted Well defined osseous defect with sclerotic rim, suspected fluid or gelatinous content	* Proximodistally-oriented hyperintense linearities not counted as demineralisation (-> categorised as fissure – grade 2, 3 or 4 subchondral bone defects, see above)
						
	Location recorded as maximal point: mid-sagittal, medial or lateral parasagittal					
Size of demineralised region (proximodistal x dorsopalmar/plantar x mediolateral)(mm) measured on T1 GRE sequences						
Osseous densification	Abnormal low signal intensity of the subchondral and/or trabecular bone on T1 GRE and T2 FSE Extent visually estimated using proximodistal distance from articular surface	0 = Normal subchondral bone plate thickness and transition to trabecular bone ($\pm \leq 3\text{mm}$)	1 = Hypointense signal increased, distance less than the depth of the sagittal groove	2 = Hypointense signal increased, distance greater than one times the depth of the sagittal groove and extending no further than the physis/physeal scar	3 = Hypointense signal increased, extending further distally than the physis/ physeal scar and into the diaphysis	
						
	Location of the densification recorded as centred: mid-sagittally (biaxially symmetrical), medially or laterally					

Bone oedema-like signal	T1 GRE hypointensity, STIR FSE hyperintensity, intermediate or increased intensity on T2 GRE (T2*oW) with rim of hypointensity (fat water cancellation phenomenon, FWC) Extent visually estimated using proximodistal distance from articular surface	0 = Absence of relevant bone oedema-like signal No clear STIR hyperintensity; T2* hyperintense foci or thin line within the subchondral bone plate which parallel the anatomical contour of the articular surface are not considered relevant and therefore may be present	1 = Abnormal signal involving only the subchondral bone plate. STIR hyperintensity may be present (not always visualised due to artefacts or concurrent osseous densification); larger or thicker region of hyperintense or intermediate T2* signal, with clear rim of hypointense FWC	2 = Abnormal signal involving the subchondral bone plate and extending into the trabecular bone, up to the level of the proximal physis/ physeal scar	3 = Abnormal signal involving the subchondral bone plate and extending into the diaphyseal trabecular bone	4 = Abnormal signal extending into the diaphyseal trabecular bone, with distally directed linear extension
						
Location of bone oedema-like signal recorded as being centred mid-sagittally, medially or laterally						

References

1. Brünisholz, H.P.; Hagen, R.; Fürst, A.E.; Kuemmerle, J.M. Radiographic and Computed Tomographic Configuration of Incomplete Proximal Fractures of the Proximal Phalanx in Horses Not Used for Racing. *Veterinary Surgery* 2015, 44, 809–815, doi:10.1111/vsu.12364.