



**Additional Figure 1 Experimental design.**

Eighteen pigs underwent TBI surgery on day 0. At 24 hours post-TBI, gait collection was performed on all 18 pigs and MRI was performed on a subset of 6 pigs. 4 pigs were sacrificed at 24 hours, 1 week, and 4 weeks post-TBI. At 12 weeks post-TBI, gait collection and MRI were performed on 6 pigs, and then all pigs were sacrificed. MRI was performed on the same 6 pigs at 24 hours and 12 weeks post-TBI. \*At 24 hours post-TBI, due to acquisition complications, T2-weighted (T2W) fast spin echo (FSE)/FLAIR was only acquired on 5 pigs (sequences not acquired for 1 pig). DWI/DTI was acquired on all 6 pigs. \*\*At 12 weeks post-TBI, due to acquisition complications, T2 FSE/FLAIR was only acquired on 5 pigs (sequences not acquired for 1 pig) and diffusion-weighted imaging (DWI)/diffusion tensor imaging (DTI) was only acquired on 5 pigs (sequences not acquired for 1 pig). MRI: Magnetic resonance imaging; TBI: traumatic brain injury.