## **Description of Additional Supplementary Files**

## File Name: Supplementary Movie 1

**Description:** Kinematic analysis of a SOD1<sup>G93A</sup> mouse at P112 at a speed of 10 cm/s (average phenotype of SOD1<sup>G93A</sup> mice at this timepoint). Video was recorded at 150 frames/s, and it is shown at 30 frames/s.

## File Name: Supplementary Movie 2

**Description:** Kinematic analysis of a SOD1<sup>G93A</sup>;En1<sup>cre</sup> mouse at P112 at a speed of 15 cm/s (average phenotype of SOD1<sup>G93A</sup>;En1<sup>cre</sup> mice at this timepoint), showing differences in hindlimb hyperflexion and in the angle of the mouse body from the belt. Video was recorded at 150 frames/s, and it is shown at 30 frames/s.