**Explanation of Basso Mouse Scale assessment method.**

The Basso Mouse Scale for Locomotion is a semi-quantitative 10 point scale to measure functional performance from complete hindlimb paralysis (score 0) to normal walking (score 9) in mice.S4 Two testers observe the behavior of the mouse in a large round enclosure for 4 minutes and assign a score based on operational definitions of locomotion ranging from ankle joint movements (scores 1-2), weight supported stepping (scores 4-5), forelimb-hindlimb coordination (scores 6-7), and trunk control (score 8). The locomotor score can predict the neuropathology of white matter sparing after spinal cord injury across a range of severities and multiple mouse strains.

The Bass Mouse Scale has strong psychometrics (validity, reliability, sensitivity),S4 and demonstrates good sensitivity in progressive neurovascular lesions like contusionS5-S9 and endovascular aneurysm models.S1 A mixture of early time points and later assessments were designed to detect the onset of dysfunction and any lasting deficits. This time course aligns with human progression of dysfunction. An in-depth description of the BMS and its psychometrics is available.S4

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