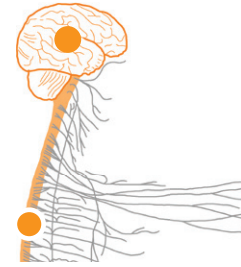
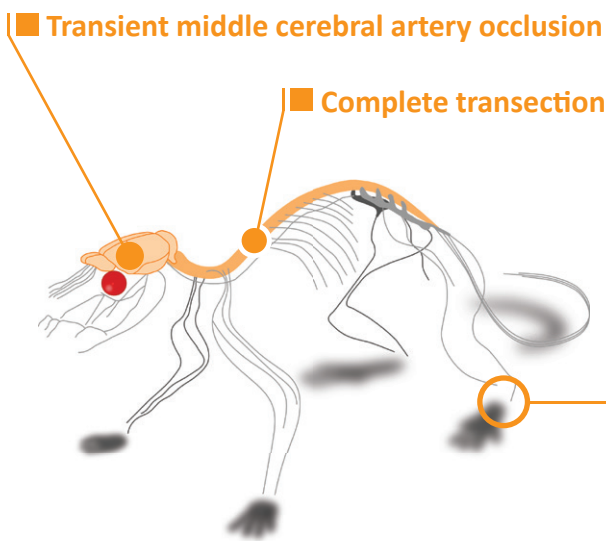


Spasticity is a disabling complication of spinal cord injury or stroke. Spasticity is defined as a symptom of the upper motor neuron syndrome characterized by an exaggeration of the stretch reflex secondary to hyperexcitability of spinal reflexes. In this condition, the muscles are stiff or rigid, which interfere with walking, movement, or speech.

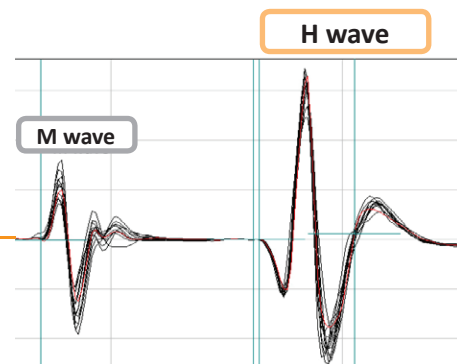


1. The Rate Dependent Depression (RDD) of the Hoffmann's reflex (H reflex)

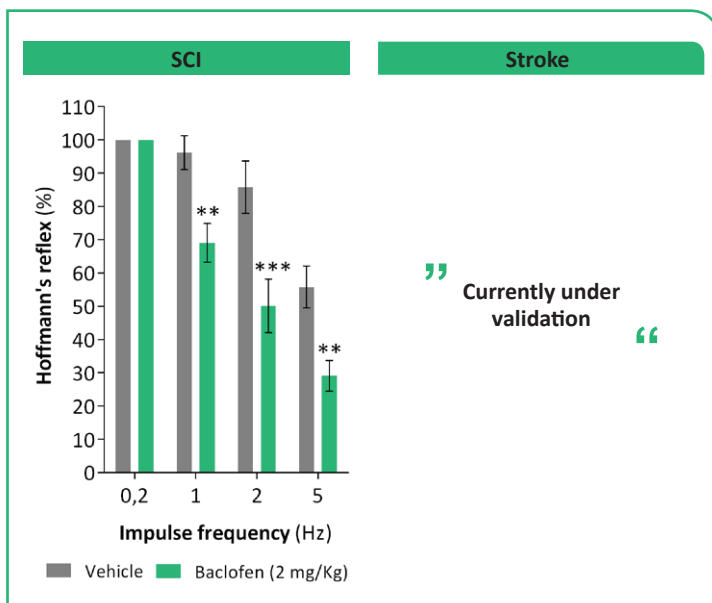


The **H reflex**, is used to assess primary (type Ia) afferents-mediated motoneuronal excitability. Electromyograms show two responses:

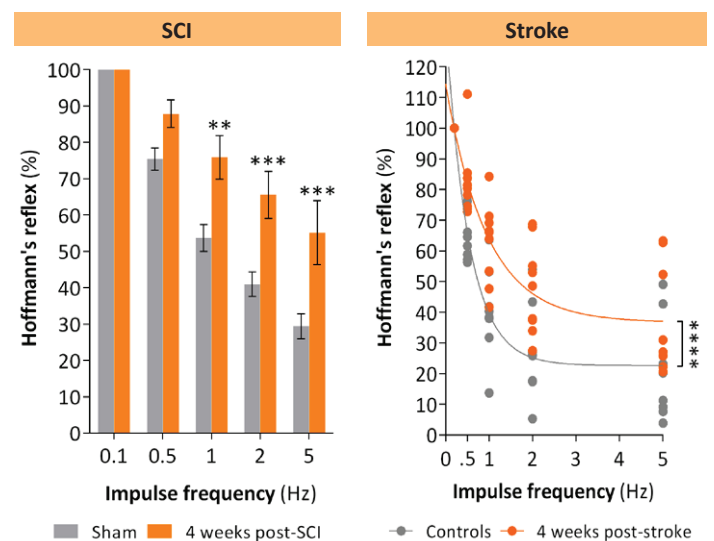
- a **M wave** resulting from the direct activation of motor axons
- a **H wave** resulting from the monosynaptic activation of motoneurons by Ia afferents

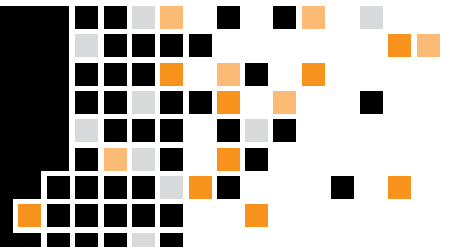
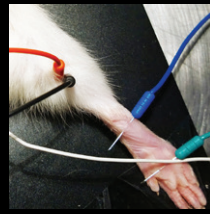
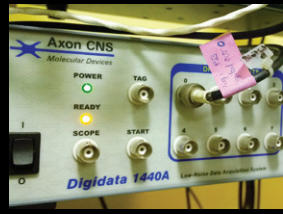
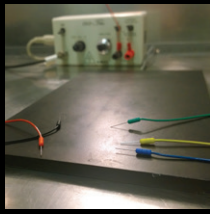


Spasticity reduction with single intravenous administration of baclofen



The **RDD of the H reflex**, is progressively reduced in rats with spinal cord injury (SCI) or stroke. This effect is a reliable correlate of the development of spasticity.



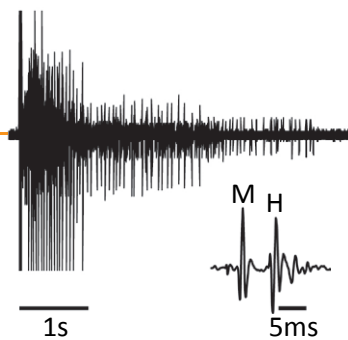
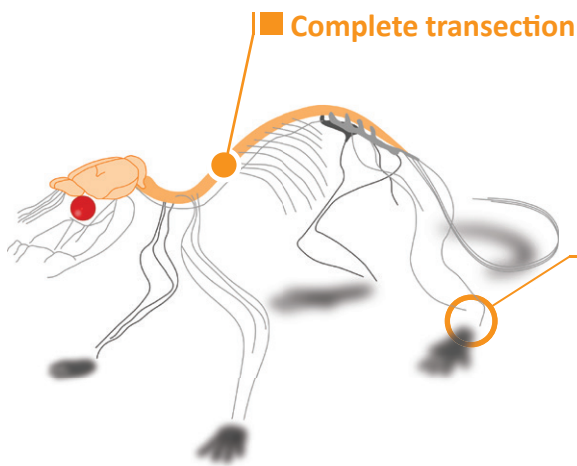


2. Electrophysiological assessment of spasticity in awake chronic adult SCI rats

Hindlimb muscle spasms,

are evoked with a stimulation of the tibial nerve while performing electromyographic recordings from the flexor digitorum brevis muscle.

Responses are typically characterized by a sustained muscle contraction that lasted for several seconds.



Spasticity reduction following intraperitoneal injection of compound A

Muscle spasms,

are significantly reduced after i.p. administration of compound A (8mg/kg), compared to vehicle. The effect is specific to the long-lasting tonic activity as none of the parameters characterizing M and H waves were changed.

