Remote Damage. Cerebro-cerebellar interactions in rats and humans.

Cognition, Learning and Plasticity.

ABSTRACT

Functional impairment after focal CNS lesion is highly dependent on damage that occurs in regions that are remote but functionally connected to the primary lesion site. This pattern, defined remote damage, is particularly evident in the cerebellar system, in which functional interactions between the cerebellum and cerebral cortex are of paramount importance. In the sixties very little doubt existed on the motor specificity of cerebro-cerebellar interactions. Today cerebellar contribution is considered critical also in a variety of non-motor domains, such as cognition, emotion, and affection. Furthermore, today’s technology allows the addressing of cerebro-cerebellar interactions in both humans and animal models at many levels from molecular to physiological improving our understanding of brain functioning and providing new insight on the pathophysiology of remote damage of relevance in many different diseases, such as stroke, multiple sclerosis, and traumatic brain and spinal cord injuries.

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