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## Motor neglect

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## Definitions

### Motor neglect

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The term *motor neglect* (*négligence motrice* in the French literature) designates the behavior of patients with unilateral brain damage, who underuse the limbs contralateral to their lesion, in the absence of sensorimotor deficits that might account for such behavior. Patients with motor neglect typically show reasonably preserved strength and dexterity when prompted to move their limbs. Thus, motor neglect denotes a clinical dissociation between impaired spontaneous motor behavior, above and beyond elementary motor deficits (such as corticospinal deficits or parkinsonian hypokinesia) or sensory loss (such as loss of light touch), and relatively preserved movements to command.

Patients with motor neglect make little or no movements of the contralesional limb when gesturing during speaking and on bimanual tasks (e.g., clapping, opening a bottle, buttoning or unbuttoning a dress). During walking, the contralesional limb may lag behind the ipsilesional limb, or it may lack normal swinging. Severe forms of motor neglect may mimic hemiplegia.

Patients are not aware of the fact that they do not move the contralesional limbs, that is they are anosognosic for motor neglect. Motor neglect often occurs in the absence of any signs of spatial neglect, whether extrapersonal or personal. In other cases, signs of motor neglect may accompany sensory neglect, motor and sensory loss of the left hemibody, and hemiasomatognosia. This motor neglect component can be reduced through vestibular caloric stimulation.

*Label.* The term *limb hypokinesia* has been used to define motor neglect, but is at risk of being confused with parkinsonian hypokinesia, which is not part of the typical clinical picture of motor neglect.

The term *motor extinction* is used to describe situations in which bilateral activities increase contralesional motor neglect, relative to unilateral activities.

Motor neglect should be distinguished from the learned non-use phenomenon, which may affect the contralesional limbs in chronic stroke patients. This phenomenon was initially labeled as *functional motor amnesia* (*amnésie motrice fonctionnelle*).

It is important to differentiate the notion of motor neglect from that of *directional motor disorders*, such as *directional hypokinesia* or *aiming neglect*, which indicate spatial disorders affecting movements towards the contralesional side, independent of the effector limb; motor

neglect is instead a disorder selectively affecting the contralesional limbs, independent of the spatial direction of the movement.

As far as motor intention and motor execution are concerned, motor neglect and *anosognosia for hemiplegia* represent two functionally opposite syndromes. In motor neglect, the patient is not plegic but has lost the intention to move, whereas in anosognosia for hemiplegia the patient cannot move, but still has the intention to execute willed actions.

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