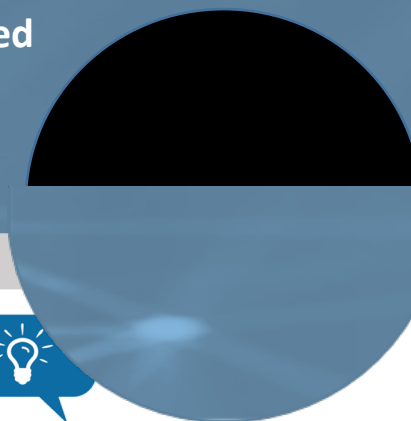
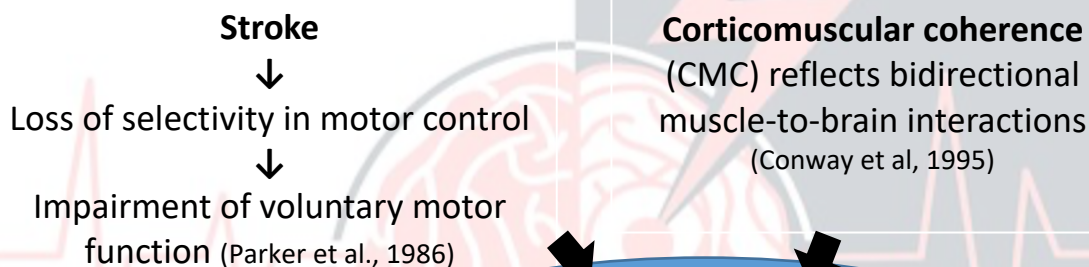


# Phasic alteration of corticomuscular coupling in post-stroke subjects is associated with decreased motor function during active elbow extensions

Maxime Fauvet (maxime.fauvet@inserm.fr), Alexandre Chalard, David Gasq, David Amarantini



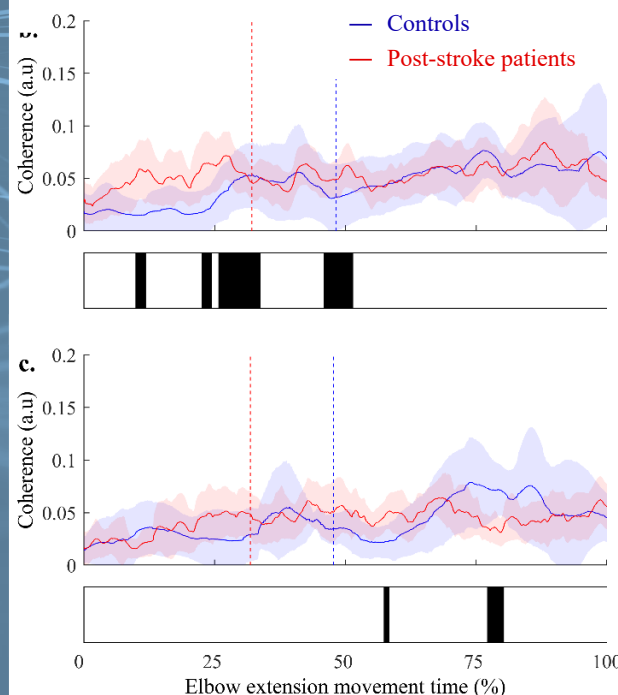
## Background:



## Methods:

- Participants:** 8 healthy subjects and 17 chronic post-stroke patients.
- Task:** 20 active elbow extensions with dominant or paretic arm.
- Recordings:** scalp EEG and surface EMG signals of agonist and antagonist elbow muscles.
- Analysis:** 12-30 Hz CMC computed between relevant EEG electrode and each antagonist and agonist muscles group.

## Results:



## Discussion:

**CMC reflects motor command and sensorimotor information** (Witham et al., 2011)

+

In equilibrium theory (Feldman, 1986): **Co-contraction (C command)** altered in patients (Levin et al., 2000) and associated with altered motor function

↓

**Excessive CMC in antagonist muscles** during acceleration phase in post-stroke patients could reflect **the alteration of the C command**

↓

**Altered CMC is a marker of the alteration of motor control in post-stroke patients**

## Conclusions:

**Excessive CMC in antagonist muscles** reflects time-varying **alteration of the selectivity of motor commands** in post-stroke patients, which takes part to the **alteration of active motor function**. These results pleads for rehabilitation programs which could favor CMC modulation to promote active motor function recovery.