## Poststroke Recovery and Predictors of Bimanual Hand Use

Stroke survivors often have trouble with tasks that require both hands due to difficulty in recovering motor functions in the affected limb

Outcomes measured Unimanual Bimanual motor 89 patients with hand use impairment first-ever stroke and arm paresis Adult Assisting Fugl-Meyer Hand Assessment Assessment (FMA) Stroke

However, recovery of bimanual hand use remains largely unstudied

## **Study question**

How does bimanual hand use recover over time in relation to unimanual motor impairment and what are the key predictors of recovery?

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Initial bimanual hand use performance was poor but increased over time



Bimanual hand use recovery depends on corticospinal tract injury and initial sensory and cognitive impairment, but FMA-SAFE score is its strongest predictor

#### Prospective longitudinal study

Predictors

measured

#### At 3 weeks, 3 months, and 6 months

## Shoulder abduction and finger extension (FMA-SAFE score)

Sensory and cognitive impairment

Neuroimaging predictors

Weighted corticospinal tract lesion load (wCST-LL)

Resting-state interhemispheric functional connectivity



In patients with moderate-severe inital unimanual motor impairment, FMA-SAFE score was the strongest predictor of bimanual hand use outcome and degree of recovery



In analyses without FMA-SAFE score, wCST-LL and sensory and cognitive impairment were additional predictors

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