

Does visuospatial neglect contribute to standing balance within the first 12 weeks post-stroke?

A prospective longitudinal cohort study

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Background

The association of visuospatial neglect (VSN) with standing balance throughout the first 12 weeks post-stroke has been poorly investigated.

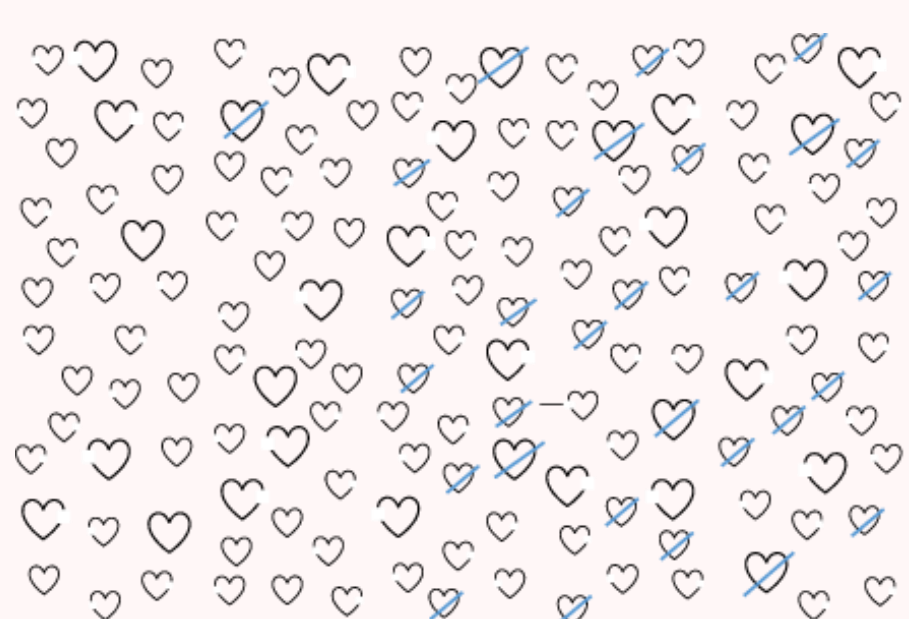
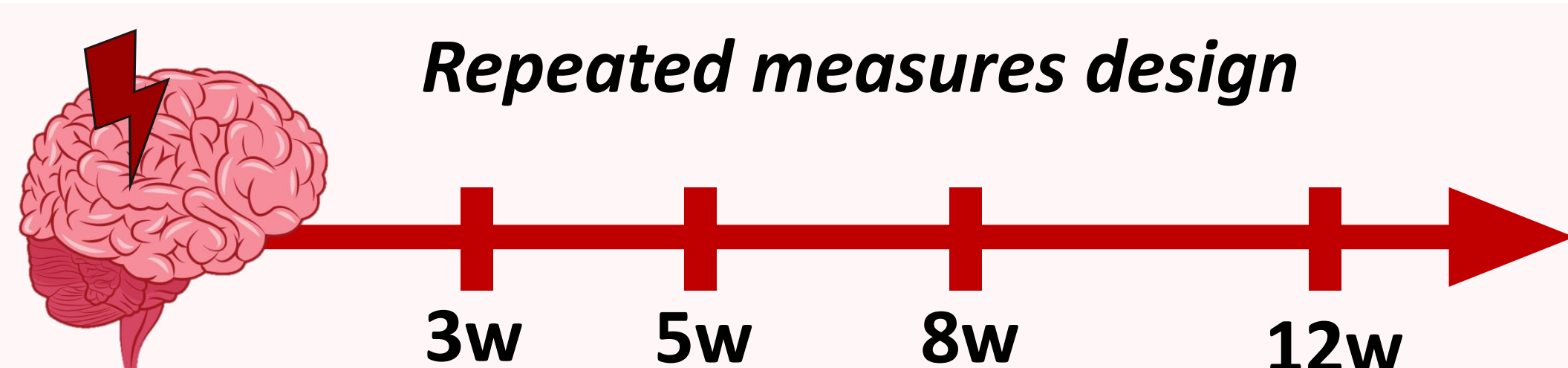
Studies that try to explain rather than simply show the mechanisms underlying a potential longitudinal association of VSN with standing balance **are lacking**.

Objectives

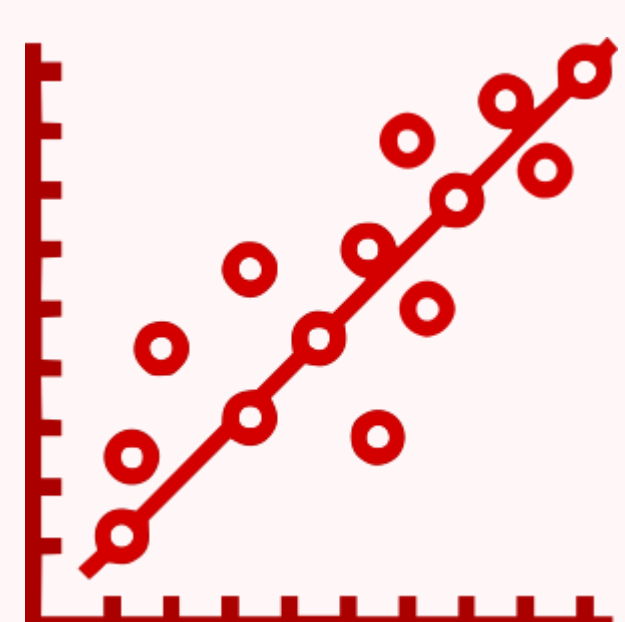
To evaluate the longitudinal association of VSN with

- 1) Standing balance independence
- 2) Underlying balance control mechanisms and weigh-bearing asymmetry in the first 12 weeks after stroke.

Methodology & results



Egocentric and allocentric VSN severity was evaluated with the Broken Hearts Test

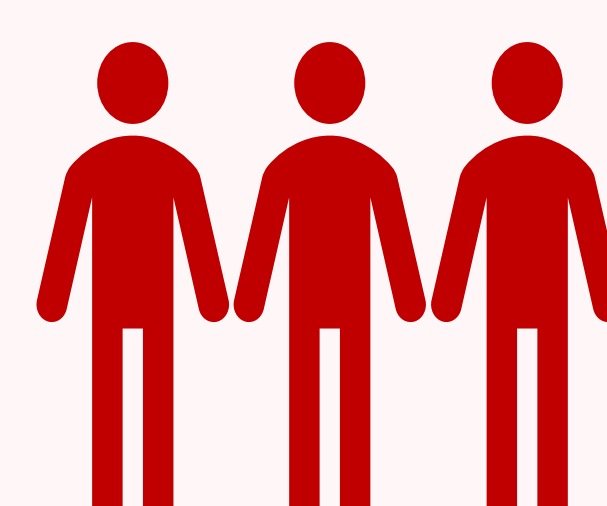


Hierarchical linear mixed model analyses, with covariates for lower limb muscle strength (motricity index), lower limb sensory impairment (present/absent) and age.



Activity measures of standing balance included the standing item of the Berg Balance Scale (BBS-s) and the Functional Ambulation Categories.

Measures of **postural control** included mediolateral center-of-pressure velocities (COPvel-ML) and anteroposterior center-of-pressure velocities (COPvel-AP). **Weight-bearing asymmetry** was also evaluated.



- **Thirty-six hemiplegic individuals**
- First-ever unilateral stroke
- Mean age was 59.78 (SD 15.96), 17 were female, 22 had a left-sided stroke and 28 suffered an ischemic stroke.
- Fourteen individuals showed egocentric VSN at week 3, and 4 showed allocentric VSN.

Visuospatial neglect is longitudinally associated with decreased standing independence, but not with measures of postural control and weight-bearing asymmetry, throughout the first 12 weeks post-stroke



Discussion and future directions

- Poor standing balance in individuals with VSN may involve other factors.
- Initial severity of VSN may affect the ability to perform posturographic measurements.
- **Evaluating postural control and WBA in individuals with moderate-to-severe VSN is challenging.**
- Classic paper-and-pen tests may not detect VSN once standing ability is regained.
- Future research should implement more sensitive VSN measures to detect residual impairments in later phases.



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