

Stepping response and subjective instability during postural perturbation in Bilateral Vestibular Hypofunction

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Introduction

Protective stepping response is a defence mechanism to prevent falls. This response is often defective in neurological patients (Parkinsonism), which can lead to falls.

Patients with bilateral vestibular hypofunction (BVH) → increased risk of falls.

Is the stepping response preserved ?

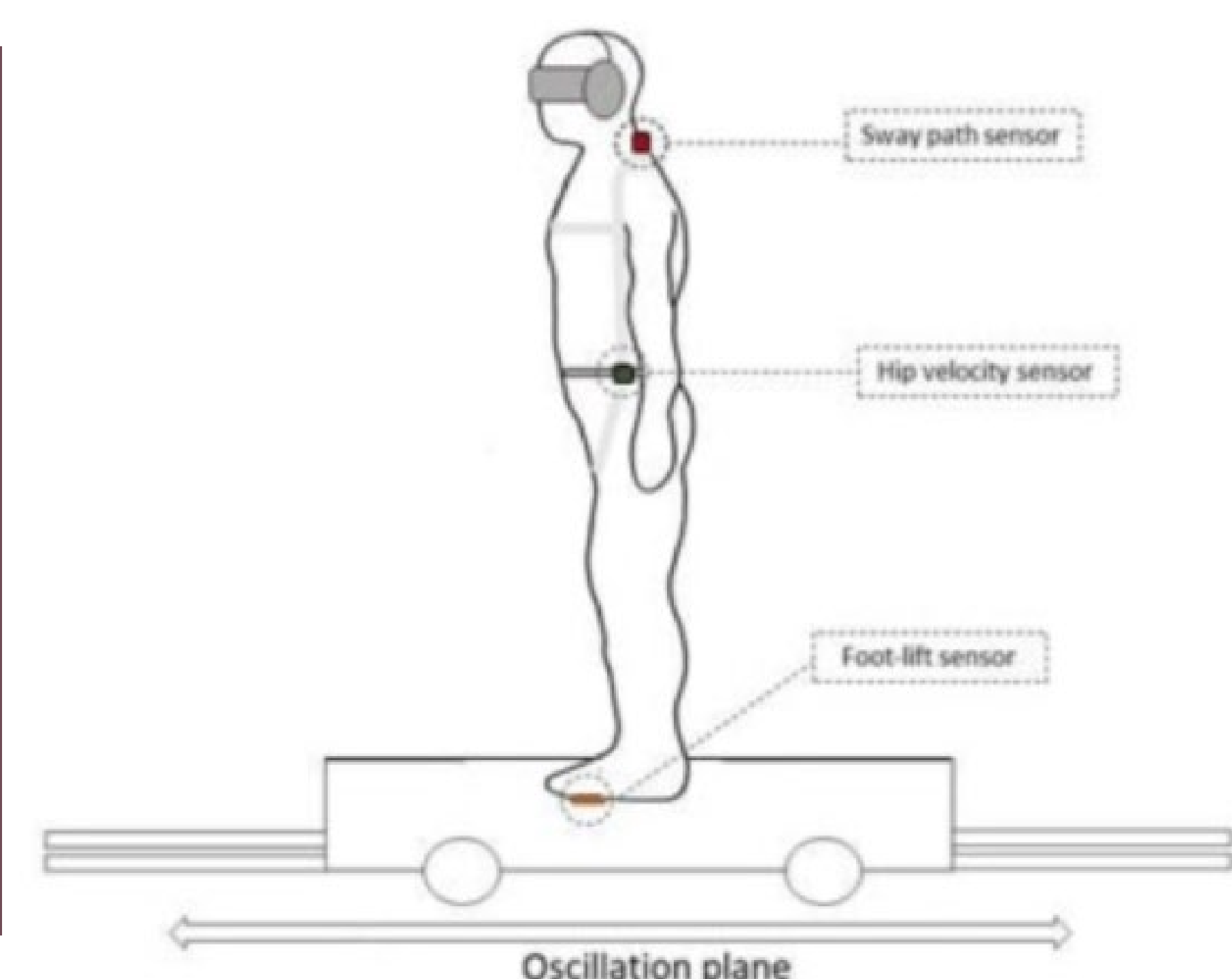
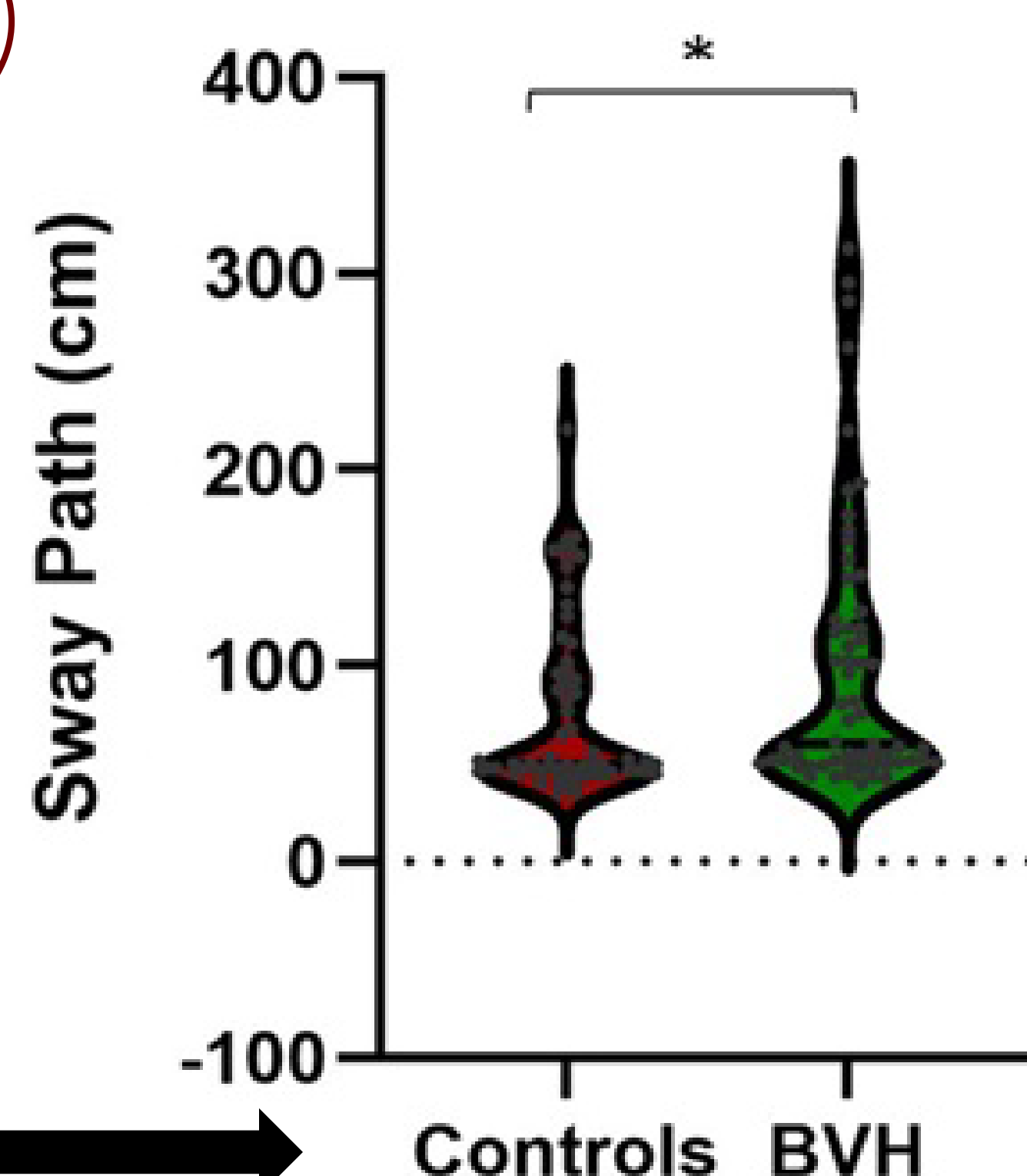
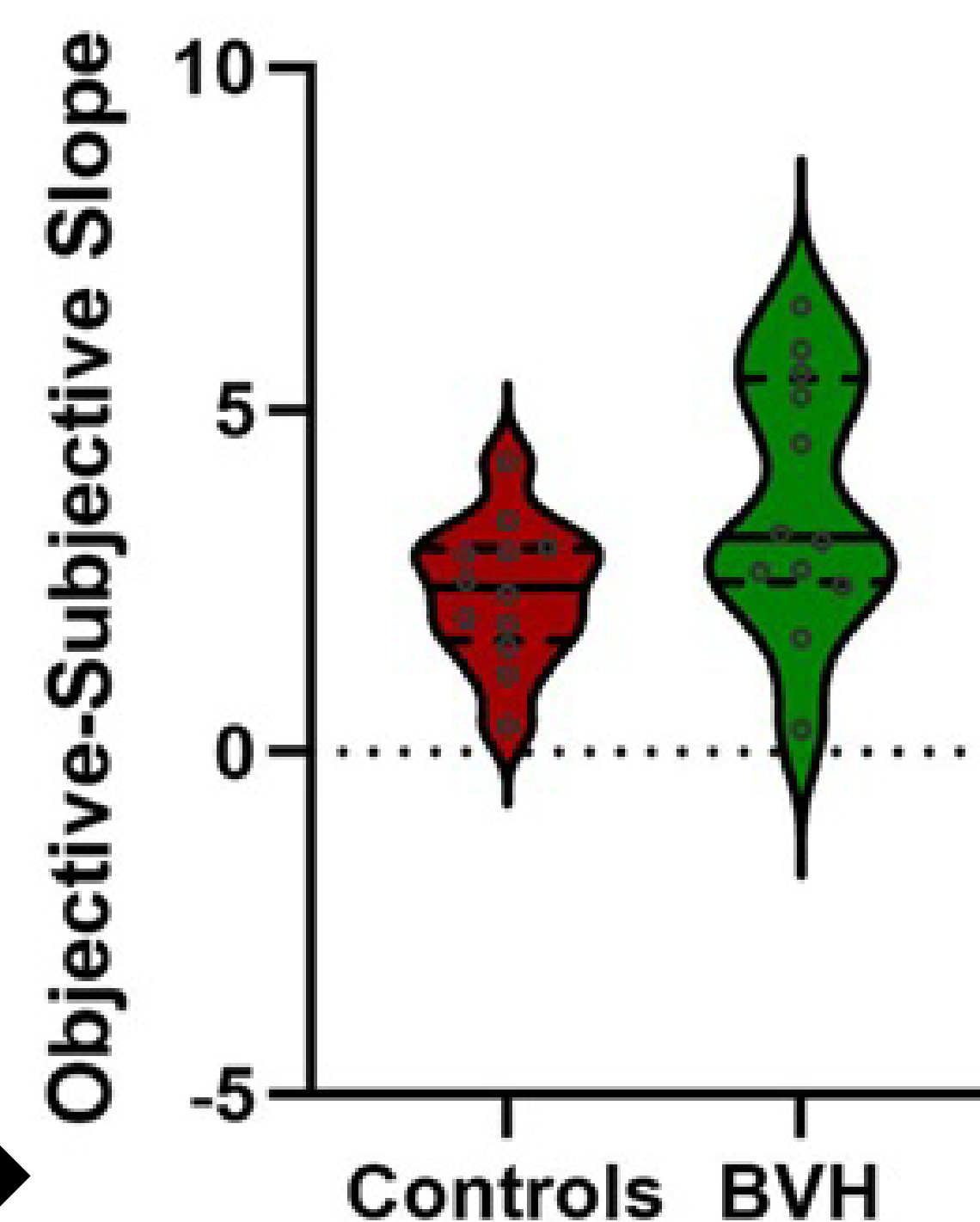
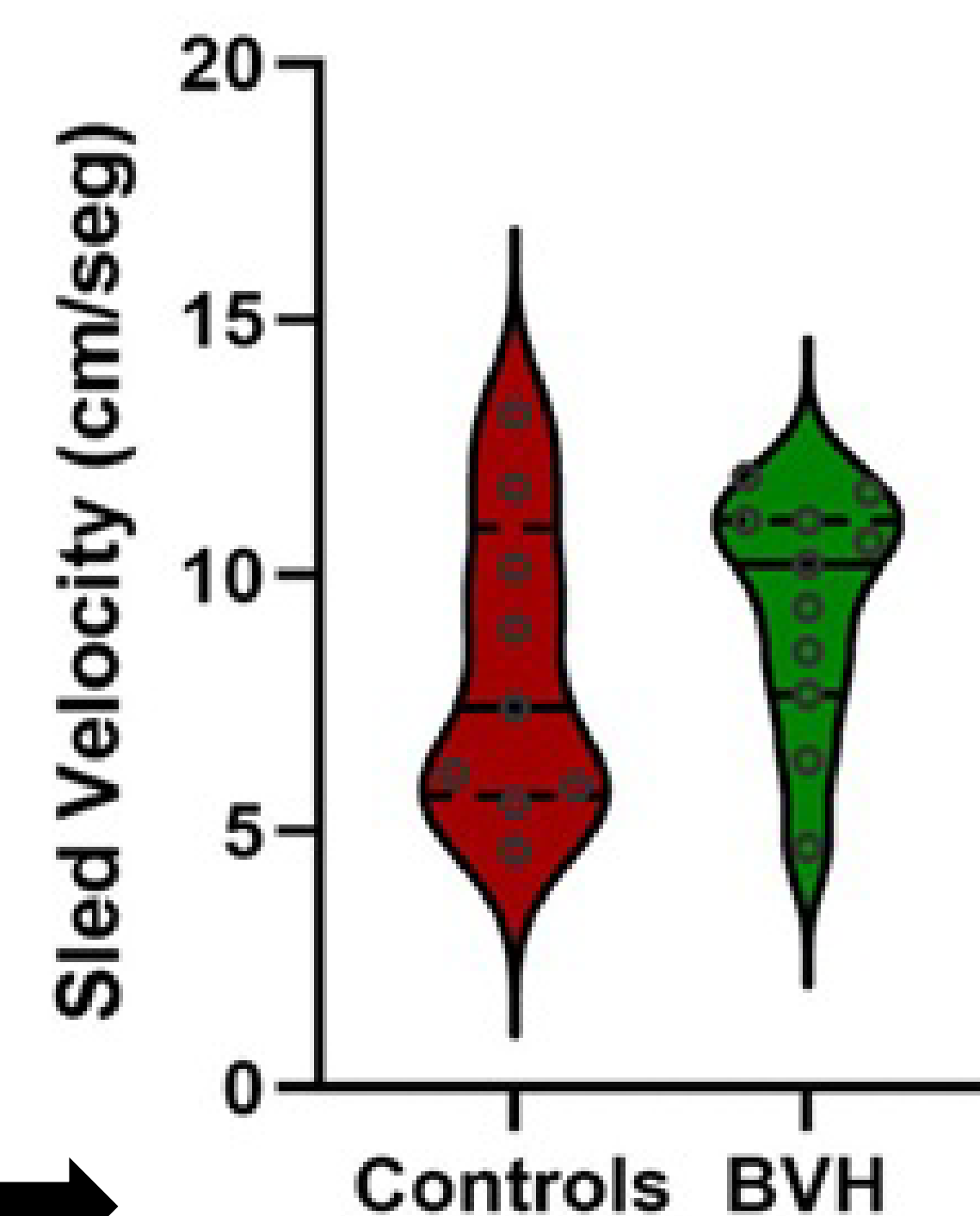
Methods

12 BVH

12 controls

Postural task:

- Objective and subjective instability
- Stepping Response



Results

BVH patients:

- More unstable (sway path; $p=0.03$)
- Marginally steeper objective-subjective instability curves ($p=0.053$)
- Velocity thresholds to generate stepping responses were similar to controls ($p=0.324$)

Discussion

Protective stepping response is preserved in BVH patients, hence not critically dependent on vestibular input. The findings align with clinical knowledge that patients with neuro-degenerative conditions (e.g. Parkinsonism) have abnormal stepping responses but preserved vestibular function