

INTRODUCTION

Complex Regional Pain Syndrome (CRPS) is a chronic pain syndrome characterized by sensory, motor and vegetative symptoms, and also by cognitive changes affecting body perception and representation. Despite some evidence that this body misrepresentation might be due to spatial perception difficulties, other authors are in favor of a motor deficit that could reflect learned strategies to avoid provocation of the CRPS limb. However, CRPS patients' performance at standard spatial tests are not adequate to test this question. So far, we cannot conclude that these cognitive changes extend to stimuli presented in the space outside the body (i.e. peripersonal space). **Hypothesis : CRPS patients are impaired when perceiving and exploring the peripersonal space of the pathological limb.**

METHODS

PARTICIPANTS

15 CRPS patients (M = 49.4 y.o.; 10 females; 9 left-hand CRPS) and 15 matched controls

METHOD Line Bisection Task in virtual reality robotic environment



Fig.1. Line distance, Active Hand and Workspace conditions

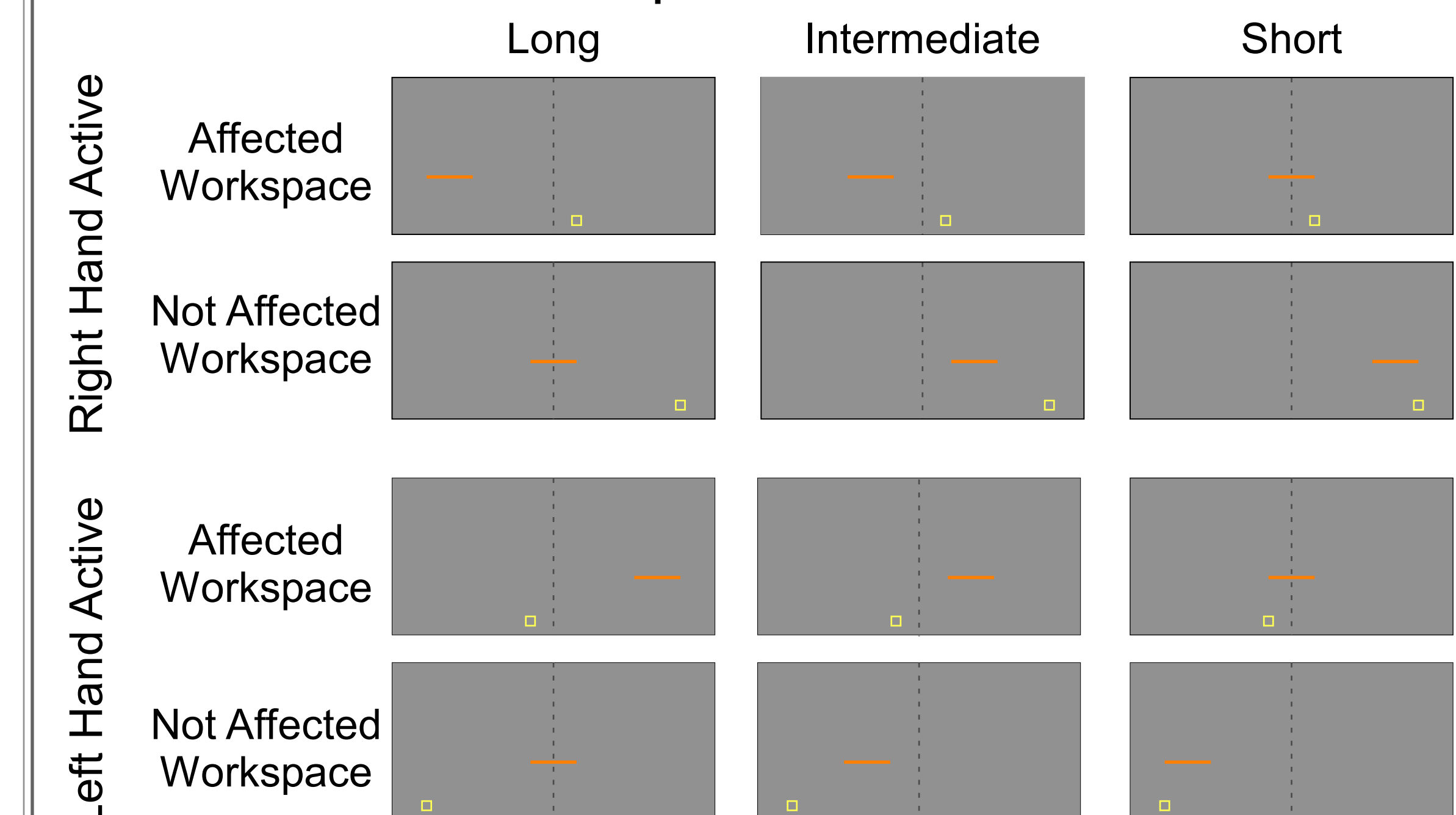
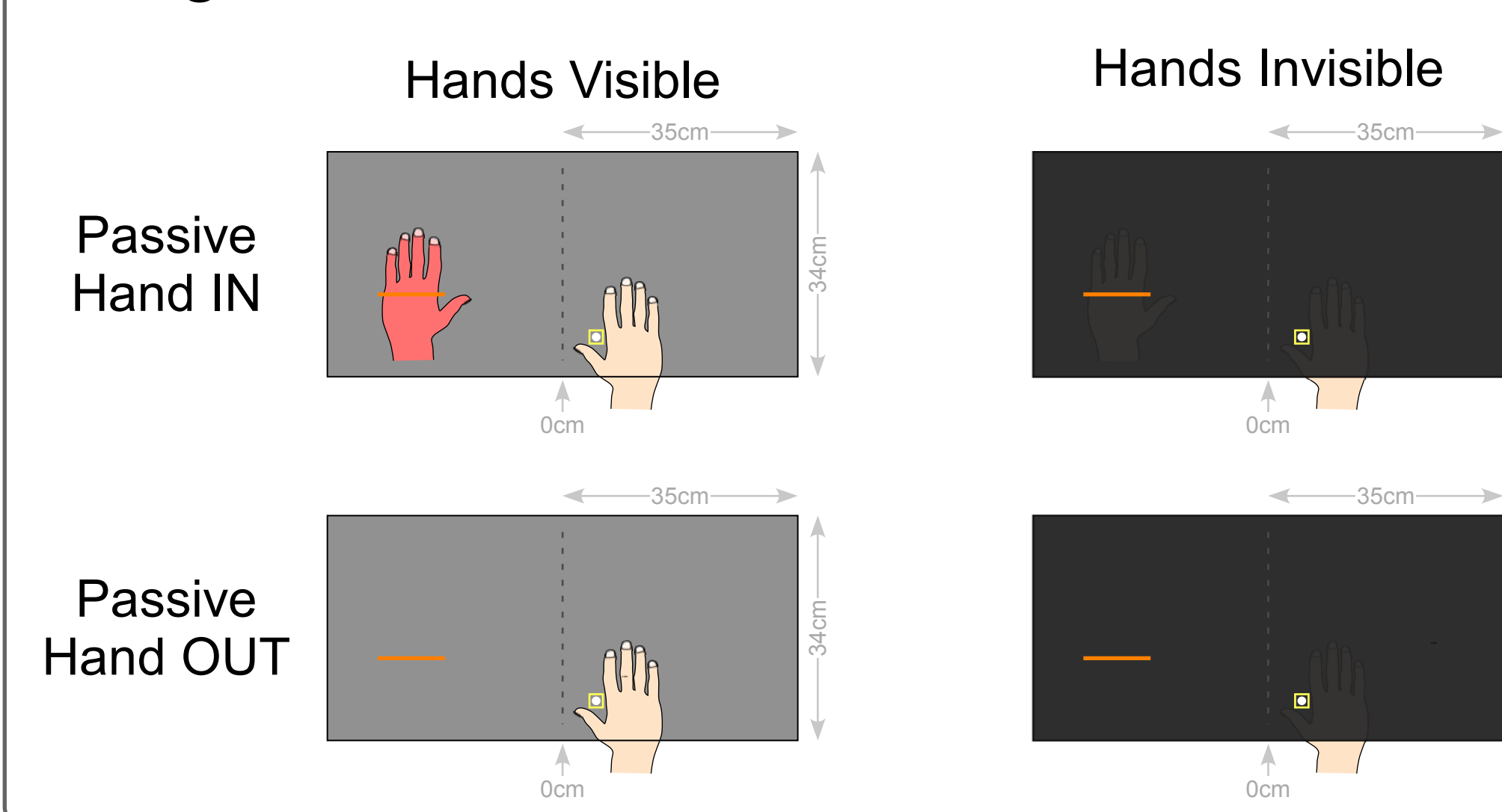


Fig.2. Hand Position and Vision conditions



MEASURE

Bisection bias (%) : Objective middle of the line - subjective bisection of the line (negative = bisection towards the left and positive = bisection towards the right)

Between factors : * Group (CRPS vs. Control) X Active Hand (Left vs. Right)

Within factors : * Workspace (Affected vs. Unaffected) X Hand Position (Inside vs. Outside the workspace) (**Fig. 1**) X Vision (Visible vs. Invisible) (**Fig. 2**)

RESULTS

T-TESTS (0)



ANOVA

- * CRPS patients show a significant deviation towards the left side of space.
- * CRPS patients present no bias when crossing lines projected at a short distance from the starting position in the unaffected workspace.

CONCLUSION

Our results are in line with previous studies that show a systematic leftward visuospatial deficit in the upper-limb CRPS population, similar to pseudoneglect behavior observed in healthy volunteers. Therefore, we hypothesize that such an initially common visuospatial deviation could be exaggerated in CRPS patients due to a spatial attention imbalance. Because a general bisection bias has been highlighted when performing the task with the healthy hand, data are more in favor of a motor neglect hypothesis than a motor deficit due to an avoidance strategy.