

Spatial remapping

Spatial remapping, the process of updating information across [eye movements](#), is an important mechanism for [trans-saccadic](#) perception. The right [posterior parietal cortex](#) (PPC) is a region that has been associated most strongly with spatial remapping. The aim of a project of Ten Brink et al. was to investigate the effect of damage to the right PPC on direction specific [transsaccadic memory](#). They compared trans-saccadic memory performance for central items that had to be remembered while making a left- versus rightward eye movement, or for items that were remapped within the left versus right [visual field](#).

They included 9 [stroke](#) patients with unilateral right PPC lesions and 31 healthy control subjects. Participants memorized the location of a briefly presented item, had to make one saccade (either towards the left or right, or upward or downward), and subsequently had to decide in what direction the probe had shifted. We used a staircase to adjust task difficulty (i.e., the distance between the memory item and probe). Bayesian repeated measures ANOVAs were used to compare left versus right eye movements and items in the left versus right visual field.

In both conditions, patients with right PPC damage showed worse trans-saccadic memory performance compared to healthy control subjects (for the condition with left- and rightward gaze shifts, $BF_{10} = 3.79$; and when items were presented left or right, $BF_{10} = 6.77$), regardless of the direction of the gaze or the initial location of the memory item. At the individual level, none of the patients showed a direction specific deficit after leftward versus rightward saccades, whereas two patients showed worse performance for items in the left versus right visual field.

Damage in the right PPC did not lead to gaze direction specific impairments in trans-saccadic memory, but instead caused more general [spatial memory](#) impairments ¹⁾.

¹⁾

Ten Brink AF, Fabius JH, Weaver NA, Nijboer TCW, Van der Stigchel S. Trans-saccadic memory after right parietal brain damage. *Cortex*. 2019 Jun 28;120:284-297. doi: 10.1016/j.cortex.2019.06.006. [Epub ahead of print] PubMed PMID: 31376588.

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