

What happens when the brain fails: neuropsychological studies on spatial memory

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Abstract Visuo-spatial exploration and memory for object arrays in the peripersonal space and for environmental information are often been considered equivalent in the neuropsychology. Nevertheless, a set of data suggests that inability in coding and memorizing visuo-spatial information in the peripersonal space not ever corresponds to inability in coding and memorizing information for environmental navigational purposes. We present a set of data showing that the system coding environmental information for building mental maps of the environment to be stored in long term memory is double dissociated from the processes involved in coding visuo-spatial information in the peripersonal space. A

direct comparison between short and long term memory of peripersonal visuospatial information and environmental information has been performed by submitting normal and brain damaged patients to two tests: Corsi test and an experimental version of Corsi test on large scale. In the latter test the positions of the nine cubes in Corsi test correspond to nine squares in 3 x 2.5 m carpet. Subjects see the experimenter perform a path on the squares and had to repaeat the same path. Right brain damaged patients show a dissociation between impaired performances on the standard Corsi and the experimental Corsi test, demonstrating the existence of two different set of visuo-spatial memory processes.

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