

## Posterior parietal cortex involvement in skill learning

### **ABSTRACT:**

#### **Background**

The current knowledge on the neural basis for acquiring non-declarative information is still limited. Evidence from different lines of research suggests that the neural structures involved in motor skill learning depend on task demands and learning stage. The contribution of the parietal cortex to motor skill learning is not fully understood.

#### **Aim**

This study evaluated the consequences of damage to the parietal lobe for learning a visuomotor tracking skill.

#### **Method**

Thirty subjects with a single unilateral brain lesion (13 with and 17 without parietal damage) and 23 demographically comparable healthy subjects performed the Rotary Pursuit task.

#### **Results**

For each group, time on target increased significantly across the four learning blocks. Subjects with parietal lesions had smaller improvements on the Rotary Pursuit from the 1<sup>st</sup> to the 4<sup>th</sup> block than subjects with lesions in other brain areas and healthy comparison subjects. The improvements on task performance from the 1<sup>st</sup> to the 2<sup>nd</sup> and from the 1<sup>st</sup> to the 3<sup>rd</sup> learning blocks were similar between groups.

#### **Conclusions**

The parietal lobe appears to play an important role in the acquisition of a new visuomotor tracking skill, in particular during a relatively late phase of learning.

#### **Keywords**

Memory, Skill learning, Parietal lobe, Lesion studies

### **Published Work:**

Cavaco, S., Anderson, S., Chen, K.-H., Teixeira-Pinto, A., & Damásio, H. (2015). Parietal damage impairs learning of a visuo motor tracking skill. *Neuropsychologia*, 79, Part A, 106–112. doi: 10.1016/j.neuropsychologia.2015.10.038

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### **Researcher's Contacts:**

Sara Cavaco  
Hospital S. António, Serviço de Neurologia  
Largo Prof. Abel Salazar  
4099-001 Porto  
Portugal

Tel.: 351 222077500 (4128)

Email: [smcavaco@icbas.up.pt](mailto:smcavaco@icbas.up.pt), [sara-cavaco@uiowa.edu](mailto:sara-cavaco@uiowa.edu)