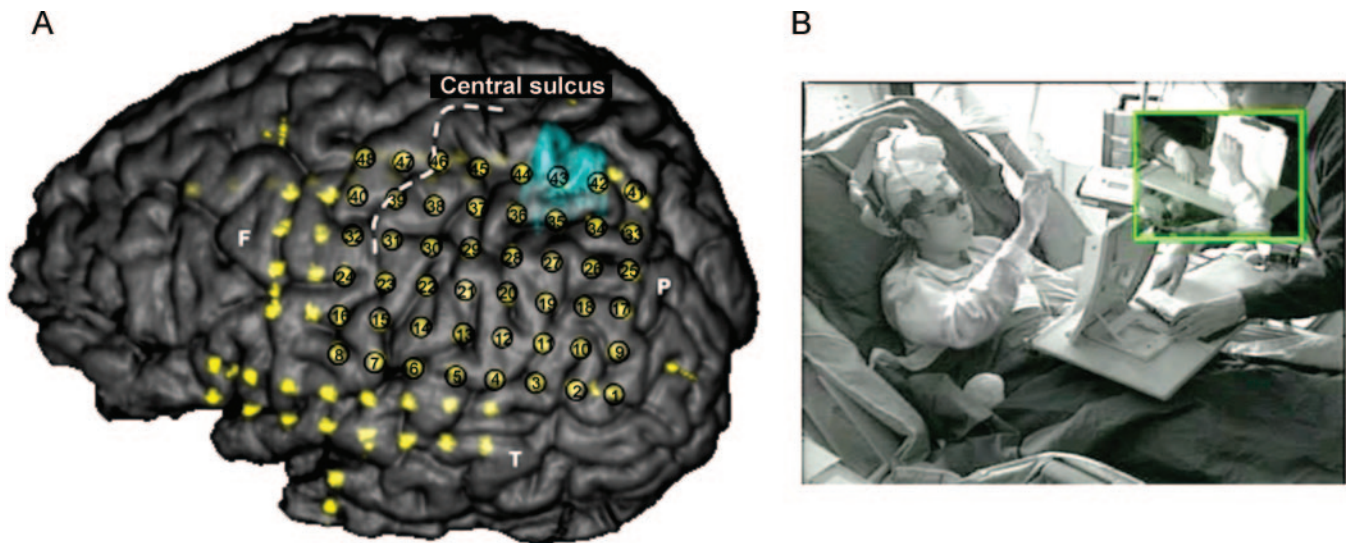


# Stimulation of the parietal cortex affects reaching in a patient with epilepsy



**Figure** (A) MRI left hemisphere cortex rendering with positions of the grid electrodes superimposed (lesion in blue on the mesial side) and (B) video still of the reaching arrest and posturing during stimulation of electrode pair 37–45



A 15-year-old girl with complex partial epilepsy had subdural electrodes implanted. She was tested on reaching tasks during electrocortical stimulation prior to neurosurgery. MRI showed left mesial parietal dysplasia. Stimulation of the superior parietal cortex (electrode pair 37–45, figure, A) during line bisection and visually guided reaching resulted in movement arrest followed by the arm drifting upward (figure, B, videos 1 and 2 on the *Neurology*<sup>®</sup> Web site at [www.neurology.org](http://www.neurology.org)). Stimulation of these electrodes also resulted in reaching arrest when aiming toward proprioceptive targets (video 3). These observations are consistent with the idea that superior parietal cortex contains representations of defensive arm postures<sup>1</sup> or is involved in sensory-guided reaching.<sup>2</sup>

*H.C. Dijkerman, DPhil, J. Meekes, MSc, A. Ter Horst, MSc, W.P.J. Spetgens, REEGT, E.H.F. de Haan, PhD, F.S.S. Leijten, MD, PhD, Utrecht, Woerden, and Amsterdam, the Netherlands*

*Disclosure:* Dr. Dijkerman receives research support from The Netherlands Organisation for Scientific Research [452-03-325 (PI) and 400-04-379 (PI)] and serves on the editorial advisory board of *Neuropsychologia*. J. Meekes has received research support from Stichting Bio. A. Ter Horst and W.P.J. Spetgens report no disclosures. Dr. de Haan serves on a scientific advisory board for OTS [Onderzoeksinstituut voor Taal en Spraak (research institute for language and speech)], Utrecht, the Netherlands, and MPI [Max Planck Institute for Psycholinguistics], Nijmegen, the Netherlands; and serves on the editorial board of the *Journal of Neuropsychology*. Dr. Leijten reports no disclosures.

*Address correspondence and reprint requests to Dr. H.C. Dijkerman, Experimental Psychology, Helmholtz Institute, Utrecht University, Heidelberglaan 2, 3584 CS Utrecht, the Netherlands; [c.dijkerman@uu.nl](mailto:c.dijkerman@uu.nl)*

Supplemental data at  
[www.neurology.org](http://www.neurology.org)

1. Graziano MS, Cooke DF. Parieto-frontal interactions, personal space, and defensive behavior. *Neuropsychologia* 2006;44:845–859.
2. Prado J, Clavagnier S, Otzenberger H, Scheiber C, Kennedy H, Perenin MT. Two cortical systems for reaching in central and peripheral vision. *Neuron* 2005;48:849–858.

# Neurology®

## Stimulation of the parietal cortex affects reaching in a patient with epilepsy

H. C. Dijkerman, J. Meekes, A. Ter Horst, et al.

*Neurology* 2009;73;2130

DOI 10.1212/WNL.0b013e3181c67999

**This information is current as of December 14, 2009**

<b>Updated Information &amp; Services</b>	including high resolution figures, can be found at: <a href="http://n.neurology.org/content/73/24/2130.full">http://n.neurology.org/content/73/24/2130.full</a>
<b>Supplementary Material</b>	Supplementary material can be found at: <a href="http://n.neurology.org/content/suppl/2009/12/13/73.24.2130.DC1">http://n.neurology.org/content/suppl/2009/12/13/73.24.2130.DC1</a>
<b>References</b>	This article cites 2 articles, 0 of which you can access for free at: <a href="http://n.neurology.org/content/73/24/2130.full#ref-list-1">http://n.neurology.org/content/73/24/2130.full#ref-list-1</a>
<b>Subspecialty Collections</b>	This article, along with others on similar topics, appears in the following collection(s): <b>Cortical localization</b> <a href="http://n.neurology.org/cgi/collection/cortical_localization">http://n.neurology.org/cgi/collection/cortical_localization</a> <b>Epilepsy surgery</b> <a href="http://n.neurology.org/cgi/collection/epilepsy_surgery_">http://n.neurology.org/cgi/collection/epilepsy_surgery_</a> <b>Motor Control</b> <a href="http://n.neurology.org/cgi/collection/motor_control">http://n.neurology.org/cgi/collection/motor_control</a> <b>Video/ EEG use in epilepsy</b> <a href="http://n.neurology.org/cgi/collection/video_eeg_use_in_epilepsy">http://n.neurology.org/cgi/collection/video_eeg_use_in_epilepsy</a>
<b>Permissions &amp; Licensing</b>	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: <a href="http://www.neurology.org/about/about_the_journal#permissions">http://www.neurology.org/about/about_the_journal#permissions</a>
<b>Reprints</b>	Information about ordering reprints can be found online: <a href="http://n.neurology.org/subscribers/advertise">http://n.neurology.org/subscribers/advertise</a>

*Neurology*® is the official journal of the American Academy of Neurology. Published continuously since 1951, it is now a weekly with 48 issues per year. Copyright . All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.

