Results: The alpha frequency range corresponding to the human cortical idling rhythm showed the greatest imaginary coherence magnitude in all subjects. In healthy subjects, eloquent brain areas had greater alpha coherence than non-critical areas. When compared to healthy controls, all patients with focal brain lesions had diffuse or scattered brain areas with decreased alpha coherence. Patients with lesion-induced neurological deficits displayed decreased connectivity estimates in the corresponding brain area compared to intact contralateral regions. In patients with tumours who did not have preoperative neurological deficits, brain areas showing low coherence could be surgically resected without the occurrence of postoperative deficits.
Conclusion: Resting state coherence measured with MEG is capable of mapping the functional connectivity of the brain, and can be used for imaging damaged vs. intact tissue.

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Residual language perception in patients in disordered states of consciousness - evidence from fMRI

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Introduction: Apallic Syndrome (AS) is a condition in which self-awareness and awareness of environment is absent. Neuroimaging studies suggest normal brain activity can be measured in AS. In remission I–III according to Gerstenbrand patients exhibit deliberate or cognitively mediated behaviour, consistently enough, for clinicians to be able to distinguish it from reflexive responses. We recently reported a selective response in the medial prefrontal cortex (MPFC) to the subjects own name in a long-term AS patient. In this study we examined brain activity in response to the subject's own name in a larger sample of AS and in remission.
Methods: Brain activity was examined in 4 AS and 4 remissions while hearing their own first name, compared with a different name, using BOLD-fMRI. There were 7 controls.
Results: Higher activity for the own compared to another name in the MPFC was found in the controls. This was only found in 1 AS and 2 remissions. Additionally, 1 patient in remission exhibited a selective response to his own name in the temporal cortex. Names resulted in an activation of the auditory cortex in all subject's, although with marked differences in strength and extent.
Discussion: Selective brain response to one's own name was found in the controls and therefore seems to be a reliable paradigm to examine residual language perception in disorders of consciousness. In line with previous studies, there was evidence that in some of the investigated patients the brain may still have some capacity for language perception.

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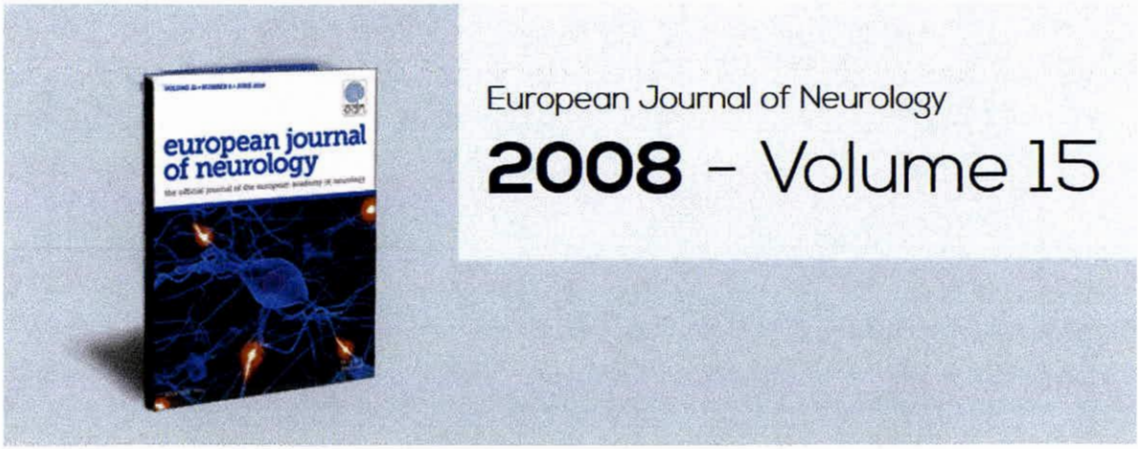

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