

- **Visuospatial attention influences residual vision of patients with brain lesions and near-threshold vision of healthy subjects**

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We applied high-resolution suprathreshold campimetry repeatedly to determine partially defective visual-field areas (transition zones) in twenty-three brain-lesioned patients. The findings were compared with results from a campimetric attention test with a visuospatial cue used to direct subjects' attention to their visual-field border (Posner's paradigm). A matched group of normal subjects was tested with both methods with suprathreshold as well as near-threshold stimuli.

Stimulus detection and reaction times of the patients improved in valid trials in comparison with neutral (uncued) conditions, but we also observed facilitation in invalid trials indicating an unspecific effect of alertness. The extent of improvement depended upon the size of the transition zone, ie there was a higher gain in patients with soft visual-field borders. In normal subjects, this effect could be simulated in the near-threshold condition.

We hypothesise that thresholds of perception are increased in transition zones but that directing attention to the visual-field border reduces thresholds and thereby facilitates conscious perception. Presumably, partially lesioned regions of the visual cortex are the neuronal basis of transition zones, and attention induces short-term neuronal plasticity in areas of residual vision. This effect might have important implications for the rehabilitation of patients with visual-field defects.