BRIEF SUMMARY

Koutstaal, W., Wagner, A. D., Rotte, M., Maril, A., Buckner, R. L., & Schacter, D. L. (2001). Perceptual specificity in visual object priming: Functional magnetic resonance imaging evidence for a laterality difference in fusiform cortex. *Neuropsychologia, 39,* 184–199.

Seeing an object on one occasion may facilitate or prime processing of the same object if it is later again encountered. Such priming may also be found – but at a reduced level - for different but perceptually similar objects that are alternative exemplars or 'tokens' of the initially presented object. We explored the neural correlates of this perceptual specificity using event-related functional magnetic resonance imaging (fMRI) procedures, contrasting neural activity when participants made object classification decisions (size judgments) regarding previously presented objects (repeated same), alternative exemplars of previously presented objects (repeated different), or entirely new objects (novel). Many frontal regions (including bilateral frontal operculum, bilateral posterior inferior frontal/precentral, left anterior inferior frontal, and superior frontal cortices) and multiple late visual and posterior regions (including middle occipital, fusiform, fusiform-parahippocampal, precuneus, and posterior cingulate, all bilaterally), demonstrated reduced neural activity for repeated compared to novel objects. Greater repetition-induced reductions were observed for same than for different exemplars in several of these regions (bilateral posterior inferior frontal, right precuneus, bilateral middle occipital, bilateral fusiform, bilateral parahippocampal and bilateral superior parietal). Additionally, right fusiform (occipitotemporal) cortex showed significantly less priming for different versus same exemplars than did left fusiform. These findings converge with behavioral evidence from divided visual field studies and with neuropsychological evidence underscoring the key role of right occipitotemporal cortex in processing specific visual form information; possible differences in the representational-functional role of left fusiform are discussed.

KEYWORDS: repetition priming, object recognition, basal temporal language area

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