Dissociation between ventral and dorsal fMRI activation during object and action recognition

By zroth
Created 7/4/2011
By zroth July 4, 2011


Abstract:

Neuropsychological case studies suggest the existence of two functionally separate visual streams: the ventral pathway, central for object recognition; and the dorsal pathway, engaged in visually guided actions. However, a clear dissociation between the functions of the two streams has not been decisively shown in intact humans. In this study, we demonstrate dissociation between dorsal and ventral fMRI activation patterns during observation of object manipulation video clips. Parietal areas, such as anterior intraparietal sulcus (aIPS) display grasp viewing-dependent adaptation (i.e., fMR adaptation during repeated viewing of the same object-grasping movement) as well as a contralateral preference for the viewed manipulating hand. Ventral regions, such as the fusiform gyrus, show similar characteristics (i.e., adaptation, contralateral preference), but these depend on object identity. Our results support the hypothesized functional specialization in the visual system and suggest that parietal areas (such as aIPS) are engaged in action recognition, as well as in action planning.

Journal: Neuron

Volume: 47

Pagination: 457-470

Date Published: aug

Notes: {PMID:} 16055068
Learn more about our exciting upcoming events!

read more
Studying at ELSC

Our Int'l Ph.D. program provides outstanding students with top-notch courses in computational neuroscience.

read more
The Building

The Jerusalem Brain Sciences Building will provide a state-of-the-art research and teaching facility for the Edmond and Lily Safra Center for Brain Sciences.

read more
ELSC Media Channel

Get into our media channel and investigate ELSC's latest videos: seminars, public lectures, courses and video articles.

read more

Source URL: https://elsc.huji.ac.il/zohary/publications/dissociation-between-ventral-and-dorsal-fmri-activation-during-object-and-action