

5. Cortical bases for pointlight processing of signs: differentiation of signer and sign

The perception of biological motion can be investigated directly using pointlight displays which preserve visible kinematics of an action, while the form of the actor remains invisible. Previous studies have established that sign language can be perceived through pointlight displays (e.g. Poizner et al, 1981) and also that individual characteristics of a body in motion can be identified (Cutting & Kozlowski, 1977). In this fMRI study, using pointlight signs produced by several signers, we established the cortical correlates of pointlight sign processing under these conditions, and were able to dissociate sign from signer in terms of the cortical circuits activated. Specifically, we noted that this form of display generated widespread activation in the frontal cortices, and that activation in right frontal cortex was more evident for the task of identifying the signer than the sign (when accuracy in identifying the signer was taken into account). We speculate that this may reflect, among other things, that this region could be implicated in accessing stored information about the signer's identity, presumably derived from the signer's usual appearance.

Cutting, J.E., & Kozlowski, L.T. (1977). Recognizing friends by their walk: Gait perception without familiarity cues. *Bulletin of the Psychonomic Society*, 9, 353-356.

Poizner, H., Bellugi, U. And Lutes-Driscoll, V. (1981). Perception of American Sign Language in dynamic point-light displays. *Journal of Experimental Psychology: Human Perception and Performance*, 7, 430-440.