Self recognition versus recognition of others by biological motion: Viewpoint-dependent effects

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The human visual system is very sensitive to the detection of animate motion patterns. We can efficiently recognize human action patterns and attribute many features of psychological, biological and social relevance to other persons. In the present study we investigated the influence of viewing angle on recognition performance of walking patterns of one's own person and familiar individuals such as friends or colleagues represented as point-light displays (PLD).

We tested viewpoint-dependent recognition performance in two groups of twelve persons who know each other very well. Participants' motion data were acquired by recording their walking patterns in 3D space using a motion capture system. Locations of major joints were computed from the trajectories of the original markers. Size normalized PLDs of these walking patterns were presented to the same group members on a computer screen in frontal view, half profile view and profile view. Before the experiment, observers were shown a list of names of all people to be presented, including their own. Observers were requested to press a button if they had recognized the person's gait pattern and to indicate afterwards the person's name by clicking on the corresponding name button in the names' list. No feedback was given to the observers.

Whereas recognition performance of the own walking patterns was viewpoint independent, recognition rate for other familiar individuals was better for frontal and half profile view than for profile view. We conclude that the viewpoint dependent recognition effect for other people might be due to attention being triggered if another person is approaching us, resulting in increased exposure to frontal and half profile views of gait patterns. The finding of viewpoint independent recognition effects for own movement patterns might be related to a crossmodal transfer from motor to visual representations.

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