Hand Posture Alters Perceived Finger Numerosity

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Abstract

Patients with posterior parietal lesions commonly fail in identifying their fingers, a condition known as *finger agnosia*. Recent research has shown that healthy people may also perform poorly in certain tasks of finger identification. Here, we investigated whether the representations of finger numerosity is modulated by the spatial relationships between the fingers. We used the 'in between' test, a classical measure of finger agnosia, in which participants estimate the number of unstimulated fingers between two touched fingers. Stimulation consisted of pairs of mechanical tactile stimuli delivered on the back of the second phalanx of the fingers of one hand. Across blocks, the fingers were placed in three postures: (1) with fingers touching each other, (2) fingers separated by one centimetre, or (3) fingers spread to the maximum comfortable splay. Participants judged the number of unstimulated fingers 'in between' the two touches and responded vocally as quickly and accurately as possible. Critically, participants gave larger numerosity estimates when the fingers were positioned far apart compared to when they were close together or touching. Our results demonstrate that increasing the spatial distance between the fingers makes participants experience the fingers as more numerous.

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