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## Congruency of body-related information induces somatosensory reorganization

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**Abstract**

Chronic pain and impaired tactile sensitivity are frequently associated with “blurred” representations in the somatosensory cortex. The factors that produce such somatosensory blurring, however, remain poorly understood. We manipulated visuo-tactile congruence to investigate its role in promoting somatosensory reorganization. To this aim we used the mirror box illusion that produced in participants the subjective feeling of looking directly at their left hand, though they were seeing the reflection of their right hand. Simultaneous touches were applied to the middle or ring finger of each hand. In one session, the same fingers were touched (for example both middle fingers), producing a *congruent* percept; in the other session different fingers were touched, producing an *incongruent* percept. In the somatosensory system, suppressive interactions between adjacent stimuli are an index of intracortical inhibitory function. After each congruent and incongruent session, we recorded somatosensory evoked potential (SEPs) elicited by electrocutaneous stimulation of the left ring and middle fingers, either individually or simultaneously. A somatosensory

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