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In: XXIX Congresso Nazionale della Sezione di Psicologia Sperimentale, 18-20 September, Lucca, Italy.

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# The role of the vision in body representations: a study on hand distortions in blind and sighted individuals

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Several studies have shown that, in healthy individuals, the presence of large distortions across different body parts, as assessed through tactile distance estimation, perception of two tactile stimuli represented on different body parts. The tactile distance between two touches on the dorsum of the hand is perceived as larger when they are oriented mediolaterally than proximodistally.

Interestingly, studies have revealed that by Other studies showed that a temporarily altered visual experience of the body, the perception of tactile distances affects perceived tactile distances. This might be due to is because the system that tends to preserve tactile size constancy by rescaling the distorted body representation into an object-centred space. This rescaling requires that the brain possesses a representation of the physical size of the stimulated body part. However, it is unclear what role vision plays in tactile size constancy.

Here, we investigated the role of vision in body representation by asking blind and sighted individuals to estimate tactile distances between pairs of points on the back of the dorsum of their hand and on their fingers. The results showed that, regardless of visual experience, both groups of subjects showed typical hand/fingers distortions. This suggests that visual information does not seem to influence body representation tested using a tactile task, at least hand perception. Therefore, Our results also suggest that, at least, the participants' representation of the back of the hand. However, concerning the fingers, blind and sighted individuals show a difference in how they perceive them. This seems to align with the idea that the rescaling of distorted body representations induced by touch seems not to be are not visually-driven. occurs on the basis of visual cues.