



UNIDIRECTIONAL INFLUENCE OF VISION ON INTEROCEPTION IN MULTI-MODAL SPATIAL REPRESENTATIONS ACQUIRED FROM NAVIGATION

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Cognition Seminar

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Visual and interoceptive information are coupled in forming multi-modal spatial representations during navigation (Tcheang, Bühlhoff, & Burgess, 2011). We investigated whether interoceptive representations activate visual representations in forming spatial representations but not vice versa (unidirectional coupling) or these two representations activate each other (bi-directional coupling). In a virtual reality environment, participants actively rotated in place to face certain orientations to get adapted to a new vision-interoception relation (gain). In particular, the visual turning angle was equal to 0.7 times the physical turning angle. After adaptation, participants walked a path with a turning angle in darkness (interoceptive input only) or watched a video of the traversed path (visual input only). Then the participants pointed to the origin of the path. The participants who were presented with only interoceptive input showed that their pointing responses were influenced by the new gain (adaptation effect). In contrast, the participants who were presented with only visual input did not show any adaptation effect. These results suggest that interoceptive input contributed to spatial representations indirectly via the coupling, which resulted in the adaptation effect, whereas vision contributed to spatial representations directly, which did not result in the adaptation effect. Hence, the coupling between vision and interoception is unidirectional.

