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# Altered grid-like coding in early blind people during imagined navigation

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## Abstract

Spatial navigation is supported by the combined activity of brain regions in the human navigation network (HNN) that integrates environmental information across complementary egocentric and allocentric reference frames. Despite humans mainly relying on vision to navigate space, the impact of early visual deprivation on the HNN is mostly unknown. In our experiment sighted and early blind participants were tested in two tasks of imagined navigation while undergoing fMRI. Results show, on the one hand, that both sighted and blind activated regions of the HNN during navigation, with no differences between groups. On the other hand, quadrature filter analysis in the entorhinal cortex, a crucial region for the creation of cognitive maps, revealed an alteration of grid-like coding in early blind individuals, which might be correlated to the adoption of egocentric-like strategies to navigate in space.