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HUMAN LOCOMOTION OF A ROUTE ASSISTS IN SUBSEQUENT BLIND NAVIGATION

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Human spatial navigation requires the establishment of a sophisticated internal representation of the environment, termed the cognitive map. Non-visual navigation requires individuals to rely on their stored model of the world in order to avoid obstacles and navigate successfully. Knowledge of distances in the environment "affects the decision to stay or go…the decision of where to go… [and] the decision of which route to take" (Cadwallader 1976: p. 316). Here we report three experiments in which participants' performance was examined as they navigated blindfolded through test environments. In each experiment, the type of information participants received about the route was manipulated i.e. they had 'practice' with either a map of the route, a view of the route, or a walk of the route. In Experiment 1, a straight line route was used and most accurate navigation was found in the group who had previously traversed the route itself. In Experiment 2, participants navigated a slalom-type route and again actual locomotion was found to aid wayfinding. In Experiment 3, a combination of the distance estimation element of the first experiment and the slalom route of the second resulted in reduced accuracy and poorer performance across groups, suggesting that visual updating is particularly important as environmental complexity increases. The findings support a new model of neurocognitive mapping (Roche et al. 2005) which suggests a distinction between egocentric, allocentric *and* functional representations in humans.