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CHANGES IN EYE-HEAD-BODY MOVEMENTS DURING MAZE LEARNING[1]

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Summary.—Investigation of the relationship between visual search (eye movement) and walking (head and body movement) during way-finding through a maze by each of 6 subject pedestrians who wore an eye camera showed patterns of sight line, head movement, body movement, and changes of coordination between eye-head-body movement during the process of comprehension of the pathways were revealed.

Visual search and eye movement while driving (Mourant & Rockwell, 1970) and peripheral vision performance while driving (Miura, 1986) have been studied, but eye movements while walking during way-finding has not. To expand on the research by computer simulation model for pedestrian movement (Okazaki & Matsushita, 1993), a study of eye-head-body movement during way-finding by six persons was conducted. Analysis showed five movement patterns of the sight line (scattered, continuous, rotational, single, and slanting fixation), and three movement patterns of the head (slight, continuous, and rotational) were noted. Throughout learning the path to the goal, the main pattern of movement of the sight lines changed from scattered fixations to continuous, and the movement patterns of the head changed from slight movement to continuous. The track of the pedestrian's body changed from minutely reacting to each particular environmental feature to reacting to the environment on a larger scale. The pedestrian's eyes, head, and body moved independently on the first trial, but after the entire path from start to the goal was understood, movements became organized and oriented in the direction in which the pedestrian wanted to travel.

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