Perception of Object Reachability and Postural Control in Sighted and Blind People

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Individuals can judge the reachability of object by hearing without vision. Body sway modulation is to pick up available information while facing various task demands or different environments. The primary perceptual system and experiences of blind people are different from those of sighted people. The purposes of this study were to investigate the difference in perception of reachability for sighted and blind people, and to observe their body sway so as to examine postural control while perceiving affordances. Twenty sighted and 8 totally blind people served as participants. The sighted group visually and audibly judged whether the object in front of them was reachable, and rated the confidence of their judgment. The blind group judged the reachability audibly only. Body sway measures were recorded when participants perceived the target. Based on the results, the conclusions are as follows: (1) Regarding sighted and blind people's auditory judgment of reachability, the two groups exhibited equal accuracy and body-scaled ratio, but higher body sway was found in blind people; (2) Comparing between non-judgment and judgment trials, the body sway of sighted people reduced in visual and auditory judgment, but the body sway of blind people increased in auditory judgment; (3) Visual and auditory judgments of sighted people showed equal accuracy in perception of maximum reachable distance, but higher body-scaled ratio and lower body sway for visual judgment were found. Therefore, consistent with perception-action coupling in ecological psychology, both blind and sighted people's actions would change in order to perceive affordance. Sighted and blind people with different experiences in visual and auditory perception have developed dissimilar patterns of postural control to perceive the fitting affordance perception.

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