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Poster Presentation

The effect of ageing on acoustic facilitation of object movement detection within optic-flow

Eugenie Roudaia^{1,*}, Finnegan J. Calabro², Lucia M. Vaina² and
Fiona N. Newell¹

¹ Trinity College Dublin, Ireland

² Boston University, Boston, MA, USA

Abstract

Multisensory integration appears to be enhanced in older age (e.g., Laurienti *et al.*, 2006; Maguinness *et al.*, 2011). Given that motion perception declines with ageing, we examined whether multisensory integration may enhance motion perception in older adults. Calabro *et al.* (2011) recently showed that the detection of object motion in the context of self-motion is facilitated by the presentation of a co-localized and directionally congruent auditory stimulus. We compared performance of younger (mean age: 26 years) and older (mean age: 68 years) participants on this task. On each trial, nine identical spheres were randomly distributed within 10 degrees of fixation and 8 spheres expanded outward for 1 s, simulating forward translation at a constant speed. One sphere (the target) had independent motion either expanding or receding at one of three different speeds. A response screen prompted the participants to report which of four highlighted spheres was the target. The task was presented with no sound and with a co-localized sound that simulated motion congruent with the target's direction. Older participants showed overall poorer target detection than younger participants. Consistent with Calabro *et al.* (2011), the auditory stimulus improved target detection in younger participants, however, it had less of an effect on older participants' performance. A control experiment confirmed that both groups were able to localize the auditory stimulus, however localization was poorer in the older group. Future studies equating unisensory performance in younger and older participants are needed to determine whether multisensory integration in motion is affected in older age.

Keywords

Motion, ageing, audiovisual motion, multisensory enhancement

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* Contact author: roudaiae@tcd.ie

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