A salient auditory stimulus improves visual contrast sensitivity but not detection speed in 3- and 6-month olds

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Background
Previous research has found that both spatial and non-spatial auditory stimulus can influence visual detectability in adults (e.g. Arieh & Marks, 2008; McDonald et al., 2000; Nickerson, 1973; Odgaard, et al., 2003; Stein et al., 1997; Störmer et al., 2009).

Here we examine whether similar influences occur early in development: does a task-irrelevant (non-spatial) auditory stimulus improve visual contrast detection threshold and detection speed in 3- and 6-month old infants?

Can a sound improve visual contrast detection?  Yes, when out-of-phase!

Does in-phase sound impair or out-of-phase sound facilitate?  Out-of-phase facilitates!

Is this an auditory alerting effect?  Yes!

Outstanding questions
1. What makes our sound alerting to infants? Is it the abrupt onset or it being difficult to integrate with the visual stimulus?
2. Speed-accuracy trade-off in infants? We are using eye tracking to get more accurate detection time measures.
3. Is the influence of visual stimuli on auditory contrast detection similar to the current findings? Our pilot results say yes!

CONCLUSION: Crossmodal alerting can be seen as early as 3 months.

References: