

## **Aero-tactile speech perception and production**

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In 2009, Dr. Gick and I published evidence that air puffs, directed at the skin and time-aligned with audio-in-noise, can help enhance or interfere with distinguishing between voiced and voiceless stops. I will present evidence that this enhancement works when air is directed at the neck, hand, or ankle. The temporal window of integration indicates the integration works in an ecologically valid asynchronous window, much like audio-visual integration. Results have been replicated and extended to include perceptual boundary shifts in an independent lab (Goldenberg, 2015). In addition, colleagues have shown the process works without an audio component, in visual-tactile speech perception, and may interact with participants' social skills (Bicevskis, 2015). However, testing of integration during continuous speech has not shown similar speech perception enhancement, raising questions as to how aero-tactile stimuli integrates into speech perception. Proposed brain research to resolve such questions will be discussed, as will new methods of recording oral and nasal airflow during speech.