

SEMINAR SERIES

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FUNCTIONAL CONNECTIVITY EVOKED BY OROFACIAL TACTILE PERCEPTION OF VELOCITY

Featuring Dr. Yingying Wang

University of Nebraska-Lincoln

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Parking Available in Lot T

ABSTRACT

The cortical representation of orofacial pneumotactile stimulation involves a complex network, which is still unknown. This study aims to identify the characteristics of functional connectivity (FC) elicited by different saltatory velocities over the perioral and buccal surface of the lower face using functional magnetic resonance imaging (fMRI) in twenty neurotypical adults. Our results showed 25 cm/s evoked more functional coupling in the right hemisphere, suggesting 25 cm/s might be optimal velocity if bilateral brain damages occur. The decreased FC between the right secondary somatosensory cortex and right posterior parietal cortex for 5 cm/s versus All-on showed that the relatively slow velocity evoked less coupling in the ipsilateral hemisphere, which suggesting functional coupling in the contralateral hemisphere is in charge of orofacial tactile perception of velocity. The increased FC between the right thalamus and bilateral secondary somatosensory cortex for 65 cm/s versus All-on indicated that the neural encoding of relatively fast tactile velocity is more coupling between the right thalamus and bilateral secondary somatosensory cortex. Our results have shown different characteristics of FC for each seed at various velocity contrasts ($5 > 25$ cm/s, $5 > 65$ cm/s, and $25 > 65$ cm/s), suggesting the neuronal networks encoding the orofacial tactile perception of velocity. The difference of functional connectivity among three velocities may indicate the optimal stimulation setting for better therapeutic effects on stroke recovery.

ABOUT DR. WANG

Dr. Wang earned her doctoral degree in Biomedical Engineering under Dr. Scott K. Holland's mentorship at Cincinnati Children's Hospital/University of Cincinnati in the end of 2013. Her long-standing interest is the evolution of language network and how language network varies among individuals. After graduate school, Dr. Wang did her two-year post-doctoral fellowship in Dr. Nadine Gaab's Lab at Boston Children's Hospital/Harvard Medical School. She is also exploring the relationship between executive function and reading ability in children using fMRI with a longitudinal study design. In Jan of 2016, Dr. Wang joined the department of special education and communication disorders as an Assistant Professor and aims to continue her imaging research on reading skills and hearing research.

more info at cobre.unomaha.edu

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