

Title: Combining articulography and brain stimulation to investigate speech motor control in people who are typically fluent and people who stutter.

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Abstract: The aim of my research is to understand speech motor control in both people who are typically fluent (PWTF) and people who stutter (PWS). To do this, I use a multi-method approach including articulography (vocal tract MRI, EMA), brain MRI and brain stimulation. These methods allow me to explore speech motor control, from the brain's control of speech through to the movement of the articulators. First, I will briefly summarise my previous research that shows 1) *differences* in articulator control and 2) *similarities* in inhibitory control, between PWS and PWTF.

During my time in Munich I plan to combine brain stimulation (transcranial magnetic stimulation) and articulography (EMA) to investigate how the brain controls the initiation and inhibition of speech movements in PWS and PWTF. I have also developed an online experiment to investigate the cognitive processes involved in trying to conceal stuttering, such as identifying and replacing difficult sounds 'on-the-fly'. I welcome lots of feedback and discussion for both of these planned experiments!

Literature:

Wiltshire, C. E. E., Chiew, M., Chesters, J., Healy, M., & Watkins, K. E. (in press, JSHLR). Speech movement variability in people who stutter: A vocal tract MRI study.

Frankford, S. A., Heller Murray, E. S., Masapollo, M., Cai, S., Tourville, J. A. 5, Nieto-Castañón, A., & Guenther, F. H. (2020). The neural circuitry underlying the "rhythm effect" in stuttering 3 4. *BioRxiv*, 2020.10.27.350975. <https://doi.org/10.1101/2020.10.27.350975>