

## **Dissecting the language of movement: insights from dystonia**

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A key role of central nervous systems is to drive the musculoskeletal system to move. As such, its circuits drive muscle contractions that cause changes to joint positioning - fundamental movements akin to syllables in the production of language. These syllables are concatenated such that words, sentences, paragraphs, and indeed stories can be produced, such as seen in dance. But bad things can happen: diseases or injuries to any of the widespread regions of the nervous system that are involved in movement can lead to its impairment. Understanding how these diseases affect the integrated neural circuits and impair the wonderful stories of movement could lead to both a better understanding of nervous system physiology, and improved treatments for these patients. In this talk, I will focus on a genetic disease leading to movement impairment, DYT-TOR1A dystonia, describe how this mutation disrupts motor circuits, and present data related to the relatively low penetrance and phenotypic variability of the disease. I will also discuss how studying the pathophysiology of this disease leads to insights into normal motor circuit function.