Techniques such as Mobile Brain/Body Imaging (MoBI) have opened new frontiers in the study of complex naturalistic behavior, a prime example of which is research involving dance. Dance offers unique access to processes involved in action and perception, visuo-motor transformations, learning and expertise; dancing involves the production of complex motor sequences synchronized with external cues, and can provide insight on broader questions in neuroscience relating to memory, timing, and spatial orientation. As a rehabilitative activity, dance demonstrates potential to slow neurodegeneration and foster neuroplasticity. Dance-based interventions, most notably for conditions like Parkinson’s and Alzheimer’s diseases, have been the subject of numerous studies over the last decade, with reported benefits including physical, cognitive, and affective improvements. This talk introduces a neurobiological model for dance and looks at how specific elements distinguishing dance from exercise or passive observation are conducive to fostering adaptive plasticity. I will present data from research conducted by our group at Canada’s National Ballet School with expert dancers and people with PD, and outline my doctoral research project which uses mobile EEG synced with motion capture to investigate what is happening in the brain while people are learning dance.

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