World Wide NeuRise

Talks by rising stars of neuroscience

Sex Differences in Learning from Exploration
Cathy Chen - Grissom Lab
(University of Minnesota)

Sex-based modulation of cognitive processes could set the stage for individual differences in vulnerability to neuropsychiatric disorders. While value-based decision making processes in particular have been proposed to be influenced by sex differences, the overall correct performance in decision making tasks often show variable or minimal differences across sexes. Computational tools allow us to uncover latent variables that define different decision making approaches, even in animals with similar correct performance. Here, we quantify sex differences in mice in the latent variables underlying behavior in a classic value-based decision making task: a restless two-armed bandit. While male and female mice had similar accuracy, they achieved this performance via different patterns of exploration. Male mice tended to make more exploratory choices overall, largely because they appeared to get 'stuck' in exploration once they had started. Female mice tended to explore less but learned more quickly during exploration. Together, these results suggest that sex exerts stronger influences on decision making during periods of learning and exploration than during stable choices. Exploration during decision making is altered in people diagnosed with addictions, depression, and neurodevelopmental disabilities, pinpointing the neural mechanisms of exploration as a highly translational avenue for conferring sex-modulated vulnerability to neuropsychiatric diagnoses.

Event link:
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