

Learning computations as potential neurocognitive mechanisms underlying developmental vulnerability to addiction.

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Despite widespread suggestion that addiction should be conceptualized as a developmental disorder, a mechanistic account of why vulnerability to addiction is heightened during adolescence has proven elusive. As learning processes play a central role in the etiology and maintenance of substance use disorders, learning theory may represent a promising avenue for understanding the developmental mechanisms underlying addiction. In this talk, I will discuss theoretical and empirical findings that implicate two learning processes, model-based control of action and Pavlovian learning, in the etiology and maintenance of addiction. I will discuss recent developmental work leveraging computational formalisms from reinforcement learning to characterize age-related changes in these processes across adolescence. I will discuss how these initial findings help to delineate avenues for future research, and I will highlight how learning theoretic approaches can provide insights into how to tailor treatment interventions to target specific neurocognitive computations that may confer heightened addiction vulnerability at a given developmental stage.