A Precise Computational Measure of Impulsivity that Signals Relevant Outcomes in Opioid Addiction Treatment

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Presentation Abstract Summary Computational models of impulsive decision-making, like temporal discounting, are widely used to study addiction. However, clinically validating a marker supposes developing methods that provide high accuracy and reliability. We first show that a modified model of temporal discounting – incorporating individual-specific risk sensitivity - provides a more precise, unbiased, and reliable measure of impulsivity than the standard approach. Using this tool, and given the current opioid epidemic, we set out to investigate longitudinally whether discounting would signal relevant negative outcomes like drug use, relapse and dropout in patients undergoing treatment for opioid addiction. We found that changes in discount rates were related to increased drug use in patients, indicating a vulnerability to full relapse and treatment failure.

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