



**University of
Zurich** ^{UZH}

Department of Economics – Neuroeconomics Seminar

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Regulation of Craving: From Neural Mechanisms to Treatment Development

In this talk, I will first review the concept of craving and its role in motivating eating and drug taking. In this context, I will present two quantitative meta-analyses of clinical studies that demonstrates that cue exposure, cue reactivity, and craving prospectively predict eating, weight gain, drug taking, and relapse following drug abstinence. Then, I will present a meta-analysis of neuroimaging studies that reveals the neural regions and systems that are significantly and consistently associated with drug cue-reactivity and craving across the published literature. I will then describe the Regulation of Craving (ROC) task, and its application in several lines of work including: (i) as a tool to experimentally assess the efficacy of regulation strategies to modulate cue-induced craving (e.g., strategies drawn from cognitive-behavioral treatments; CBTs); (ii) as a tool to investigate the basic neural mechanisms underlying craving and its regulation; and (iii) as the basis for novel mechanism-focused interventions that modulate willingness-to-pay, improve food choices, and decrease caloric consumption, cigarette smoking, and alcohol drinking. Along the way, I will argue that CBT-based regulation of craving depends on recruitment of dorsolateral and ventrolateral prefrontal cortex, and that –unlike CBT – mindfulness-based strategies reduce “bottom-up” reactivity during craving (as well as negative emotions and physical pain), without depending on prefrontal control systems.