IP3R-1 up-regulation. Furthermore, ethanol has stimulatory potential to release dopamine and to increase dopamine D1 receptor expression in cortical neurons. Taken together with these data, the inhibition of ethanol-induced IP3R-1 up-regulation by GABAA-R activation may be due to direct inhibitory interaction of GABAA-Rs with dopamine D1 receptors or suppressive action of GABAA-Rs on dopamine release by ethanol, though the exact mechanisms remain to be elucidated.

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Female cocaine users are at excess risk of becoming cocaine dependent soon after onset of cocaine use: Estimates for the United States, 2002–2011

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Aims: In this research project, we re-visit previously published estimates that suggested no male–female variation in risk of becoming cocaine dependent among newly incident cocaine users, seeking to learn about the possible changing epidemiology of cocaine use in more recent years. The main aim is to estimate the size of the male–female difference in the probability of making a rapid transition from first use of cocaine until the onset of cocaine dependence, if any difference exists.

Methods: The study estimates are based on the United States (US) National Surveys of Drug Use and Health conducted between 2002 and 2011, each with a nationally representative sample of non-institutionalized civilians age 12 years and older ($n > 50{,}000$ each year). Weighted data with complex survey variance estimates yield year-specific 95% confidence intervals (CI) reported below, from which a sample size of 1684 newly incident users can be determined. A random effects meta-analysis approach is used to summarize estimates from 2002 to 2003, 2004 to 2005, 2006 to 2007, 2008 to 2009, and 2010 to 2011.

Results: Via this meta-analytic approach, we discovered emergence of a statistically robust male–female difference, with excess risk of cocaine dependence seen for newly incident female cocaine users (9% and 95% CI = 6.30%, 11.04%) vs. a corresponding incidence estimate of 5% for males (95% CI = 3.56%, 6.28%) at $p < 0.05$.

Conclusions: Whereas underlying sex-associated neurobiological and neuropsychopharmacological mechanisms can be discussed in relation to this facet of cocaine epidemiology, it also is possible that the changing epidemiology of cocaine use in the US includes different non-random cocaine use selection processes than were present in earlier stages of the country's most recent cocaine epidemic. The possibility of recent differential male selection into newly incident methamphetamine use requires exploration.

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Can we use cue-related brain responses to predict which cocaine patients will take more risks?

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Aims: Some addicted individuals take high risks in the pursuit of drug reward, despite potentially severe negative consequences (e.g., incarceration, injury, STI/HIV infection through unprotected sex, even loss of life). We hypothesized that riskier individuals are **either** more sensitive to the motivational "pull" of reward cues, **or** less able to modulate this "pull", or **both**. To test this hypothesis, we performed a correlation between the brain response to drug reward cues and risk-taking scores on the Balloon Analogue Risk Task (BART). We predicted that higher risk taking would be *positively* correlated with cocaine cue-triggered activity in nodes of the mesolimbic reward ("GOff") circuitry, but *inversely* correlated with activity in prefrontal modulatory ("STOPff") regions associated with the evaluation and regulation of reward.

Methods: Cocaine-addicted inpatients ($n = 19$, ongoing) were scanned with event-related BOLD fMRI during exposure to brief (500 ms) evocative (cocaine, sexual, aversive) vs. neutral cues. After scanning, the participants' risk-taking behavior was assessed using the BART. BART scores (average adjusted pumps) were then used as regressors in a pre-planned cocaine-neutral cue contrast.

Results: As predicted, BART scores correlated *positively* with cue-triggered activation in several reward-relevant nodes, caudal OFC, l. amygdala, l. pallidum, and l. insula ($p < 0.05$, uncorrected). Risk-taking behavior correlated *negatively* with activation in two modulatory regions, lateral OFC and dorsal ACC ($p < 0.05$, uncorrected).

Conclusions: This is the first report, to our knowledge, that the brain response to drug reward cues can be used to predict risk-taking in addicted individuals. Medications targeting cue-related brain responses may have a dual public health benefit: (1) reducing cue-triggered relapse, and (2) reducing the willingness of addicted individuals to take health-threatening risks for drug reward.

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Initial abstinence status and Contingency Management treatment outcomes: Does race matter?

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Aims: This study evaluated the efficacy of Contingency Management (CM) among African American and White cocaine users.

Methods: A secondary analysis evaluated effects of race, treatment condition, and baseline cocaine urine sample results on treatment outcomes of African American ($n = 444$) and White