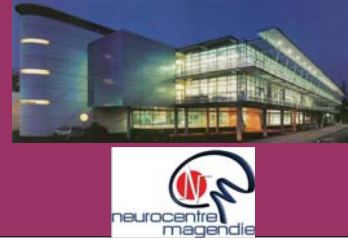


# Pattern of use might alter motivation for cocaine in rats Influence of drug accessibility

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## Context

- **Transition to addiction** is the **shift from controlled to compulsive drug use** that occurs after prolonged drug intake in a limited number of drug users.
- **Emergence of cocaine addiction in humans** is associated with episodes of **bingeing** and high **craving** for the drug.
- Using a pluri-symptomatic model of cocaine addiction in rats (Deroche-Gamonet et al., 2004), we demonstrated that **binge-like pattern of use and increased cocaine-induced craving** are not only
  - associated with addiction-like behavior, but also,
  - precede transition to addiction (Belin et al., 2009).

## It is unknown

Whether binge-like pattern of use and high cocaine-induced craving are early symptoms of addiction or play an inductive role in transition to addiction.

## Question

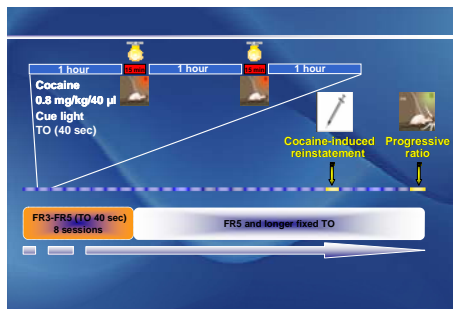
As a first step, our goal was to study whether the pattern of use (inter-infusion interval - *III*) could influence the motivational and incentive properties of cocaine after early cocaine training.

## Procedure

### Experiment 1:

After 8 training sessions (TO 40sec), 3 homogeneous groups were constituted and attributed with 2 minutes of time out (TO) condition (2minTO), 4 (4minTO) or 6 min (6minTO).

This procedure generated different patterns of cocaine self-administration with high or low inter infusions interval (*III*). Incentive properties of cocaine were evaluated by means of the cocaine-induced reinstatement test.

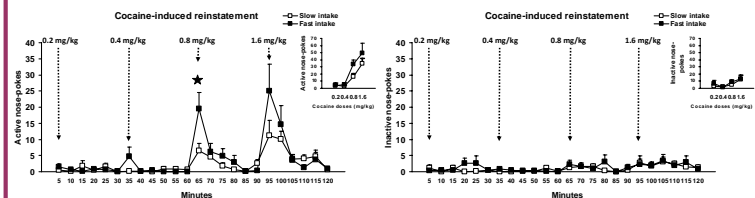


### Experiment 2:

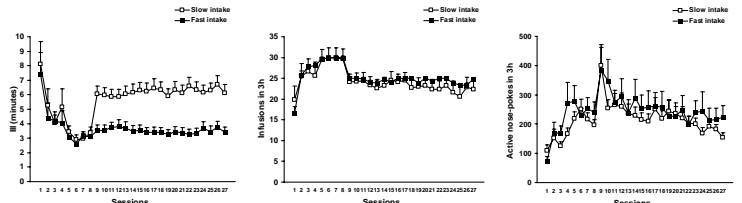
After 8 training sessions (TO 40sec), 3 homogeneous groups were constituted. One group remained on the same procedure (group "free") and the others were attributed with 2 minutes (2minTO) or 6 min (6minTO) of TO. The influence of the pattern of use (fast or slow) on the motivational (PR) and incentive properties of cocaine was evaluated as a function of the free / regulated access to the drug.

## Experiment 1

Rats showing a fast intake (low *III*) presented a higher sensitivity to cocaine-induced incentive effects as measured by a shift to the left of the dose response for cocaine-induced reinstatement.

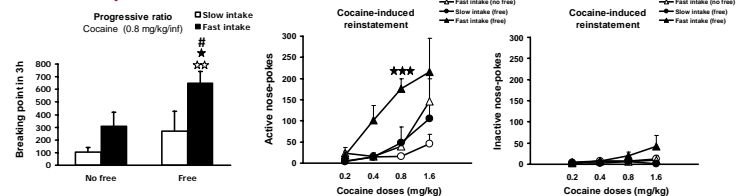


The procedure produced different and stable patterns of use as measured by the mean *III*. The daily intake of cocaine and the active nose-pokes were homogenous between groups.

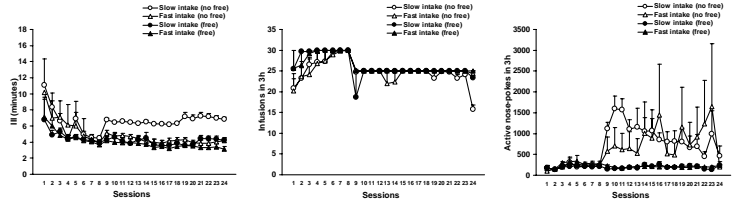


## Experiment 2

Rats showing a fast intake (low *III*) presented both higher motivational and incentive effects of cocaine. However, this effect was amplified by the free selection of pattern of use.



The procedure produced different and stable patterns of use as measured by the mean *III*. The daily intake of cocaine and the active nose-pokes were homogenous between groups.



## Conclusions and Perspectives



- Fast intake increases motivational and incentive properties of the drug.
- A determinant factor of this effect is the free selection of pattern of cocaine intake.

Whether controlling fast pattern of use can prevent transition to addiction in rats vulnerable to addiction-like behavior has to be tested.