

Interactions between psychostimulant products: study of the behavioural responses to caffeine and amphetamine and consequences of stressful events.

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Repeated administrations of psychostimulants lead to an increase in behavioral responses, such as locomotor hyperactivity. This phenomenon, named sensitization is induced by most of addictive drugs and can be potentiated by stressful events. The present study was first conducted to evaluate the cross-sensitization between two psychostimulants, caffeine and amphetamine. In parallel, the long-term consequences of stressful events on the behavioural responses have been analysed. DBA/2 male mice were submitted for 14 days to three distinct types of stress, food deprivation, social stress and sleep deprivation. Drug testing began two weeks later. Acute and repeated administrations of caffeine induced a locomotor hyperactivity. The repeated administrations of caffeine did not lead to a behavioural sensitization. Stressful experimental conditions did not significantly modify the locomotor responses to caffeine. However, the repeated administrations of caffeine potentiated the locomotor stimulant effect of amphetamine. This cross-sensitization phenomenon was enhanced by a sleep deprivation but not by the other types of stress. These data confirm that caffeine can potentiate and sensitize to further psychostimulant administration. Furthermore, this cross-sensitization between drugs may be dependent upon the stressful history.