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Sex-dependent modification by chronic caffeine of acute
methamphetamine effects on anxiety-related behavior in rats

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(Highlights)

- Acute methamphetamine (MA) is anxiolytic for males irrespective of caffeine intake.
- MA may only be anxiolytic for females when accompanied by 31 mg/kg/day caffeine.
- Possible MA effects on female memory with caffeine may be due to modified anxiety.
- 31 mg/kg/day caffeine on its own does not affect either sex.

(Abstract)

For fourteen days, male and female PVG/c hooded rats were provided continuously with either pure drinking water, or water containing caffeine in a quantity approximating a daily dose of 31.1 mg/kg. Then at intervals of 3 days, they were administered 1, 2 mg/kg methamphetamine (MA) or saline before being tested for anxiety-related behavior in a zero maze or a light/dark box, or their short-term spatial memory was assessed in a Y maze following introduction of a novel brightness change in one of the arms. Each rat experienced each type of apparatus with the same acute MA or saline treatment while still exposed to chronic caffeine or

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