

Drug preexposure in Fischer (F344) and Lewis (LEW) rats: Effects on place and taste conditioning.

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Although the LEW and F344 rat strains differ in their reactivity to a number of drugs, these assessments are generally in acute preparations. Little is known if these strains differ following chronic exposure or if they differ from outbred rats under such conditions. To address this, rats from both strains were preexposed to either morphine or cocaine and the ability of each of these two drugs was assessed for its ability to condition a taste aversion and place preference using a combined CTA/ CPP procedure. Specifically, 57 F344 and 59 LEW rats were preexposed to cocaine (32 mg/kg, ip), morphine (5 mg/kg, sc) or vehicle every other day for 10 days. They were then given a saccharin solution, injected with cocaine, morphine or vehicle and placed on the smooth side of a conditioning apparatus. On the next day, they received access to water, injected with vehicle and placed on the textured side of the apparatus. After four trials, they were given a CPP and a CTA test. A 5 (Trial) X 2 (Strain) X 2 (Preexposure) repeated measures ANOVA revealed a significant three-way interaction [$F(3,60) = 16.587$, $p = .001$] with only the F344 rats acquiring a morphine-induced CTA; the CTA was significantly attenuated by morphine preexposure. Both LEW and F344 rats acquired a morphine-induced CPP that was unaffected by morphine preexposure. Both strains acquired a cocaine-induced CTA that was significantly attenuated by cocaine preexposure, $F(3, 84) = 84.565$, $p = .000$. Neither group displayed a cocaine-induced CPP at this dose, and the preference for the cocaine-associated side was unaffected by drug preexposure. Drug history impacted aversion learning in a manner similar to that of outbred rats (i.e., attenuation) with no differential pattern for the two strains. Drug preexposure did not impact CPPs in either strain, a result inconsistent with that in outbred rats that show a potentiated preference. Such findings may have implications for the use of the F344 and LEW strains as animal models of drug use and abuse.