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**Adolescent Social Isolation Increases Vulnerability to Voluntary  
Opioid Consumption in Adulthood in Rats**

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Social stress during adolescence can cause behavioral changes lasting into adulthood and is a risk-factor for substance use disorder, but the effect varies between individuals. This study characterizes how social isolation in adolescence affects opioid use and anxiety-like behavior in adulthood using the inbred strains WKY and DSS rats. We compare adulthood oxycodone intake in self-administration and behavior in an elevated plus maze (EPM) between rats either group housed (GH) or isolated for 6 weeks during adolescence. We also develop a method (PeerPub) for operant oral intake of two rats in the same chamber to better model human social condition. Our data shows rats isolated during adolescence ( $n = \sim 12/\text{group}$ ) have higher vulnerability to oxycodone consumption in adulthood (WKY females  $P=0.006$ , WKY males  $P=0.01$ , DSS females  $P=0.02$ , DSS males  $P=0.05$ ). We also found differences in anxiety-like behavior between experimental phases (baseline, post-drug, and withdrawal). Overall, our data indicates that rats isolated during adolescence have less anxiety-like behavior before oxycodone exposure, a decreased sensitivity to the negative effects of oxycodone, however, they consume more drug. These data demonstrate a need for better understanding in the role social environments play in vulnerability to drug use. We plan to examine underlying molecular mechanisms associated with these phenotypes in future studies.