Adolescent Stress, Impulsivity, and Ethanol Binge Drinking
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Introduction
In hamsters, social stress during adolescence enhances offensive aggression. Since offensive aggression is associated with impulsivity, we hypothesized that stressed hamsters would be more impulsive. We tested impulsivity through a go/no-go test and an alcohol binge drinking test.

Methods
Animal and Treatment:
Stressed hamsters were exposed to aggressive hamsters for 20 minutes from Postnatal day 28 (P-28) to P-42 (adolescence). Control hamsters were put into clean cages.

Conditioning:
Hamsters were trained to lever press for a food reward in response to a light cue (P-45 to P-70). Afterward, hamsters were tested under a go/no-go paradigm, which consisted of sessions where a sound cue was rewarded for not lever pressing for 15 seconds (P-71 to P-91).

Ethanol Binge Drinking:
Every other day, hamsters were first exposed to a choice between 10-15% alcohol or water for 24hrs (P-92 to P-109). Their drinking and preferences were recorded. Afterward, hamsters were tested daily for 20 minute binge periods (P-110 to P-120). On the last day, hamsters were sacrificed to assay blood alcohol levels.

Results - Conditioning

Figure 1
No Consistent Effect of Stress during Go Signal Training

Go Trial
No-Go Trial

Stressed
Control

Figure 2
Stressed Animals Received more Food during Go/No-Go Testing

Go Trial
No-Go Trial

Stressed
Control

Results – Ethanol Binge Drinking

Figure 4
No Effect of Stress on Overall Alcohol Consumption

Figure 5
No Consistent Effect of Stress on Alcohol Drinking during the First 20 Minutes of Exposure

Figure 6
Hamsters in both Groups Developed a Preference for Alcohol in a few Days

Summary
1. Although there were small differences during the lever pressing phase, these differences were not consistent.
2. During the go/no-go testing, there was no group differences because of variability.
3. However, the rate of extinction in no-go sessions were greater in control animals than stressed animals.
4. Hamsters consistently preferred alcohol over water.
5. There was a slight but not significant difference between stressed and control hamsters in alcohol preference.
6. Overall alcohol drinking did not consistently differ between groups.

Conclusions
1. Stress during adolescence is associated with resistance to extinction of a conditioned reward, which is associated with impulsivity.
2. Alcohol drinking will have to be tested using an extinction paradigm.
3. This data may be relevant to Borderline Personality Disorder, which is characterized by aggression, impulsivity, substance abuse, and emotional reactivity. It is also associated with childhood trauma.

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