

Sex Differences in Alcohol-Related Cardiomyopathy: Comparing Male and Female C57BL6J Mice on Lieber-DeCarli Chronic-Binge Alcohol Liquid Diet

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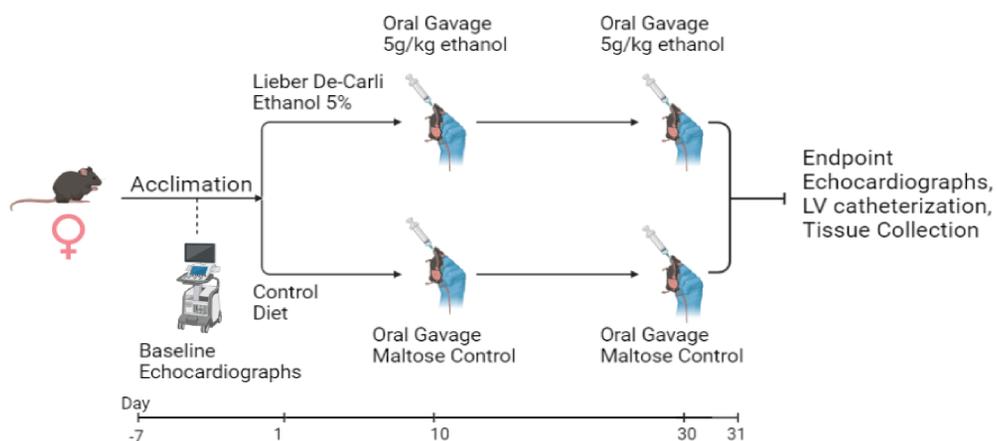
Background

- Alcohol-related cardiomyopathy (ACM) is a cardiac disease that is characterized by left ventricle (LV) dilation and diminished contractile function
- Up to 40% of dilated cardiomyopathies can be associated with chronic excessive alcohol consumption
- Females constitute only 14% of all cases of ACM, however, they require lower levels of lifetime alcohol exposure to develop ACM
- According to the National Center for Drug Abuse Statistics, about 35% of those with an alcohol use disorder are women, and this percentage has increased over the last decade.

Goal:

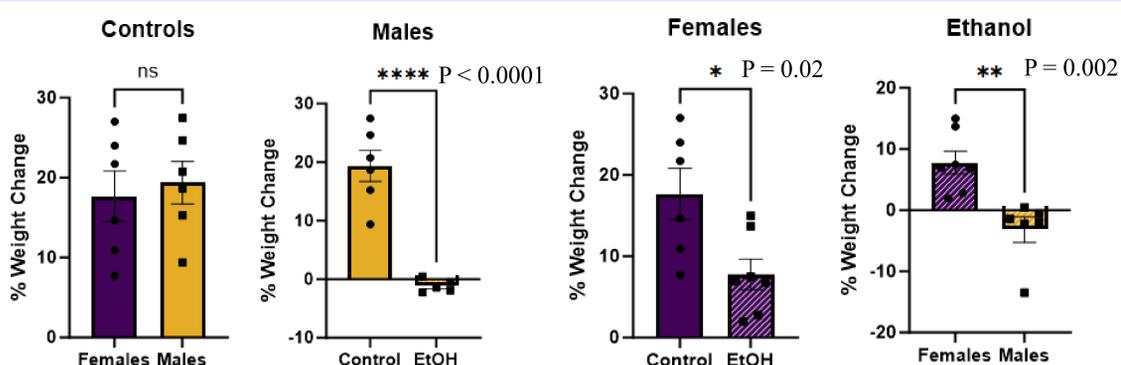
Determine if the Lieber-DeCarli chronic binge alcohol liquid diet affects male C57BL6J mice differently than female mice in terms of cardiac structure and function.

Methods

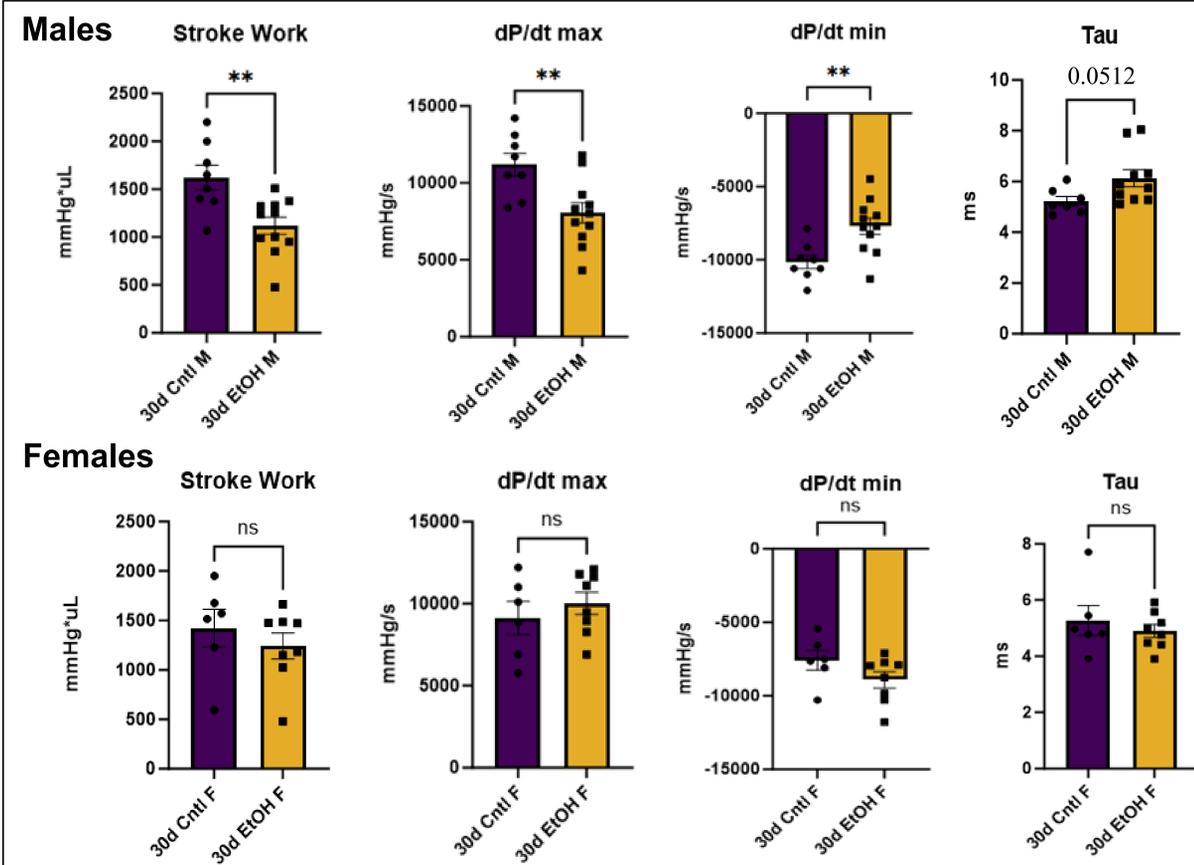


Subjects: Adult female (n=16) C57BL6J mice
Chronic Alcohol Diet: Lieber-DeCarli 5% Ethanol liquid diet or control liquid diet
Acute (Binge) Alcohol: Gavage 5g/kg bolus of ethanol solution or maltose control

Results: Percent Weight Change



Results: Left Ventricular Catheterization



Findings

- According to left ventricular (LV) catheterization data in the male cohort at 30 days, there was a significant decrease in both systolic (stroke work and dP/dt max) and diastolic (dP/dt min and Tau) function.
- The female cohort did not have significant cardiomyopathy at 30 days and appear to exhibit protection from the effects of the ethanol diet regarding their body weight and cardiac function compared to the males.
- The Lieber-DeCarli liquid ethanol diet significantly hindered weight gain in both male and female C57BL6J mice. This ethanol diet significantly affected weight gain in the males more than in the females.
- Future directions will include processing echocardiograph data to compare any potential cardiac structural differences between the male and female hearts.

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