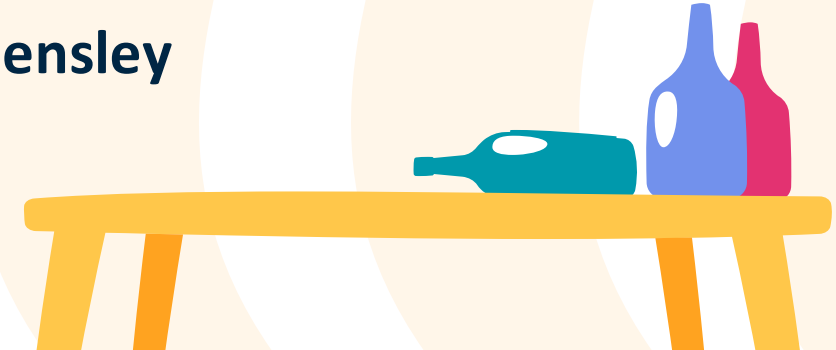
The Effects of Binge-Drinking on Memory and Attention

By Cianan Hensley



Outline

01
Previous Works

Factors into alcohol consumption, effects on the brain, why it can be dangerous

02
My Study

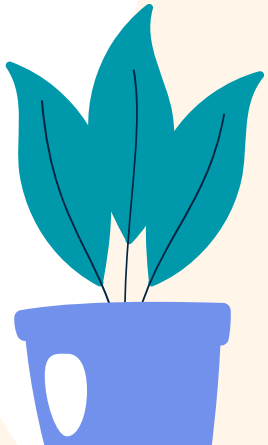
My own current study!

03
Results

What exactly did I find?

04
Future Directions

Where can we go with what we've found?



01 Previous Research

Factors into Alcohol Consumption

- Proximity to Alcohol Outlets
- Age Exposure
- Family Background
- Socioeconomic Status
- Religiosity
- Advertisement

Advertisement

Designs

Colorful designs, new flavors and additives

Contents

Lower alcohol contents

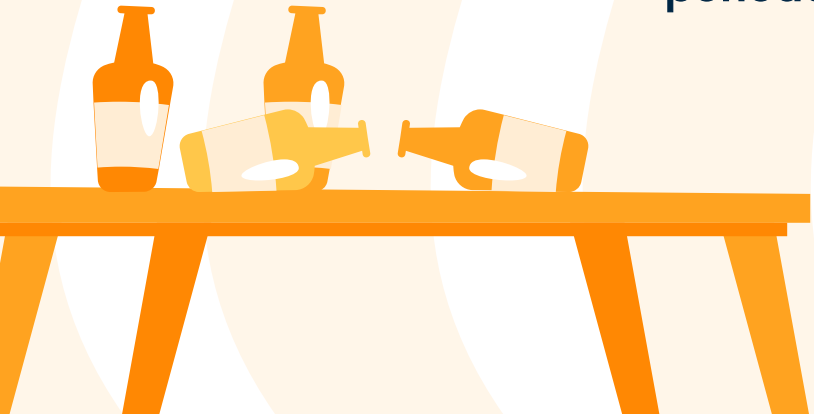
Accessibility

Available in a wide variety of stores

College Students

87% of non-binge drinkers and 76% of binge drinkers instances of consumption are in social contexts

Binge Drinking: Pattern of high consumption in short periods of time, i.e. 4-5 drinks in a two hour period



Brain-Gut Axis Effects

01 **Gut**

Alcohol Use Disorder = high inflammation and intestinal issues

02 **Brain**

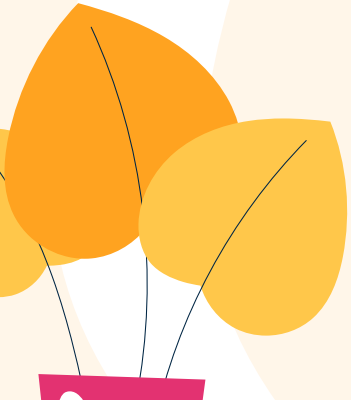
Withdrawal symptoms, alcohol cravings

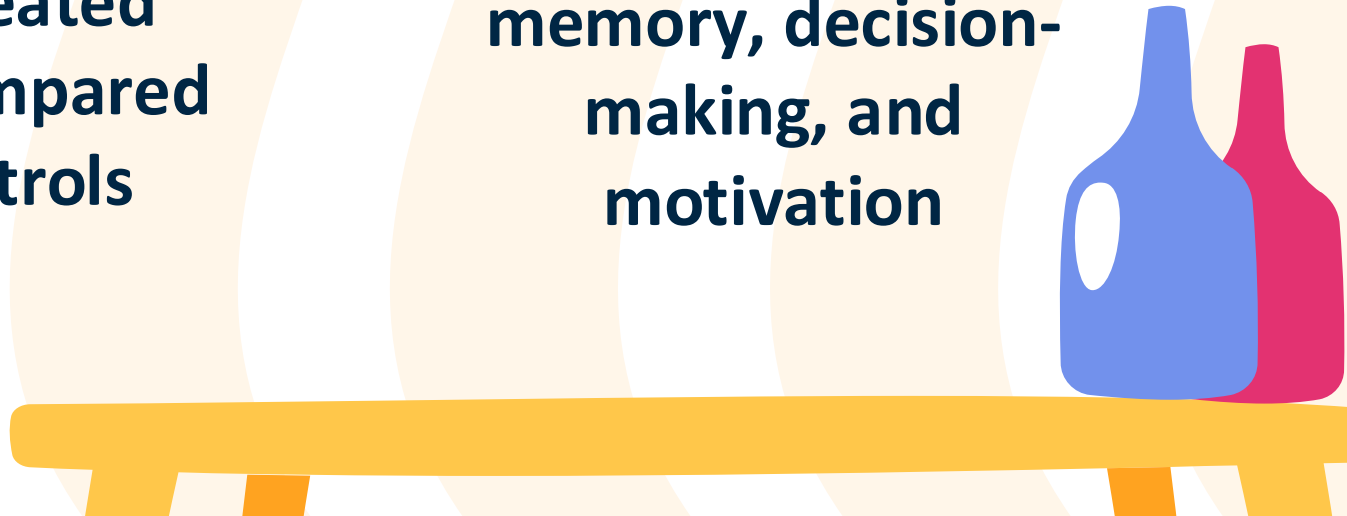
Mice

Less improvement on repeated tasks compared to controls

Brain Matter

Losses in regions of attention, memory, decision-making, and motivation





Cognitive Testing

Impulse Control

- Used Wisconsin Card Sorting Test
- Poor decisions = worse performance

Risky Behaviors

- Mock gambling tasks
- Immediate gratification -> more severe punishment

Attention

- Attention to multiple tasks at once
- Struggles, poorer decision making

Young Adults

01 Development

Drinking -> deficits in executive functioning areas

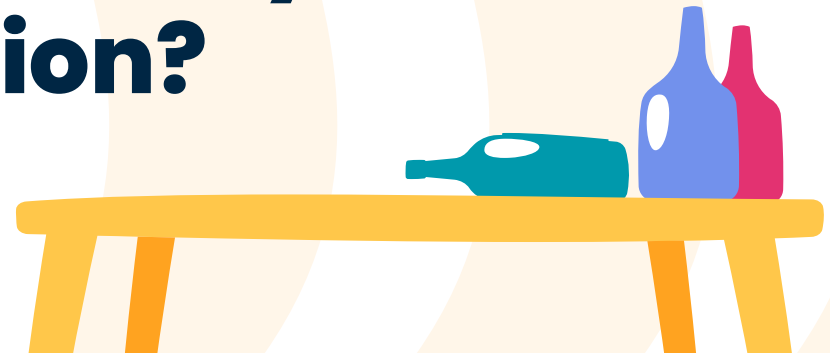
02 Deficits

Struggle in life with planning, emotional regulation, decision-making, social behaviors

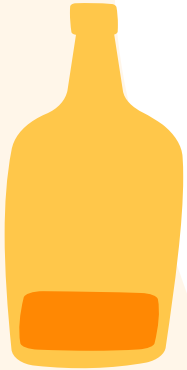
03 Damage

Post abstinence deficits remain, permanent brain damage

My Own Study: Do Binge Drinking Behaviors Result in More Deficits on Cognitive Testing Performance Measuring Memory and Attention?



Participants



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Non-Binge Drinkers

4

At-Risk

3

Binge-Drinkers

Methodology

Cognitive Testing

Rey Auditory Verbal Learning Task, Trail Making Test, Digit Span Test, Stroop Color-Word Test, Rey Osterrieth Complex Figure Test

AUDIT

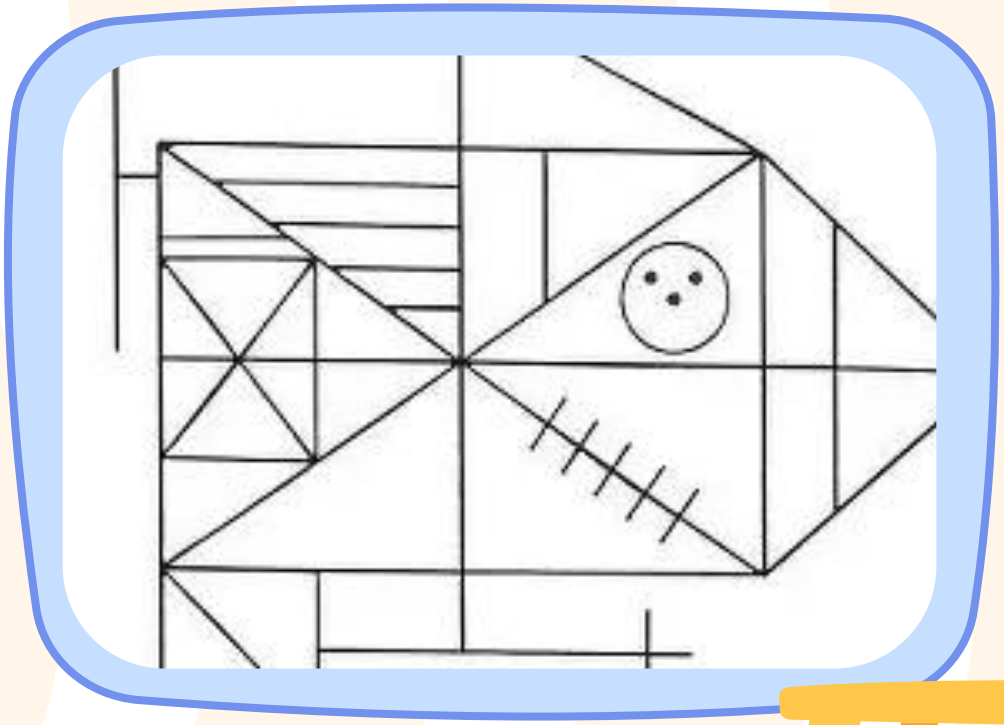
AUDIT Questionnaire, family history, social pressures, age exposure

Scoring and Results

Was there significant differences?

No Significant Results!

Trends



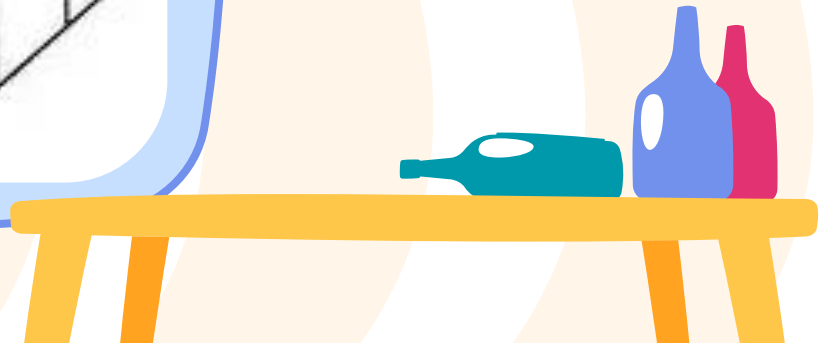
Potential Deficits Based on Trends:

Recall

Visuospatial Memory

Less Improvement w/ Repetitions

Cognitive Interference



Questionnaire

Family History	3/9 Non-Binge Drinkers, 5/7 At-Risk/Binge Drinkers
Social Pressure	4/9 Non-Binge Drinkers, 1/4 At-Risk, 2/3 Binge Drinkers
Age Exposure	Non-Binge Drinkers: 1 Year At-Risk: 3.5 Years Binge-Drinkers: 5 Years

Low BDs

Include higher B-Ds based on AUDIT

CoW

Look for higher bar culture, “party schools”

Longitudinal Studies

How do these deficits stack up in the real world?

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