

## Introduction

Addictive behaviors are strongly associated with poor response inhibition (Noël et al., 2008) as well as attention bias and automatic approach tendencies for alcohol-related stimuli (Wiers et al., 2007)

Identical behavioral pattern for heavy and light drinkers associated with different ERPs responses were previously observed in heavy drinkers (Maurage et al., 2009; Oddy and Barry, 2009)

Lower P300 amplitude, reflecting inhibition deficit, has been reported in classical GO/NOGO paradigm with alcoholic subjects (Kamarajan et al., 2005),

Higher P300 amplitude for alcohol-related cues is observed in alcoholics and heavy drinkers (Herrman et al., 2001; Herrman et al., 2000) during alcohol-related cues presentation, suggesting an alcohol-cue reactivity

⇒ **Do heavy drinkers show a deficit in the inhibition of an automatic response for alcohol-related cues ?**

⇒ **Which are the cerebral components associated to alcohol-related cues inhibition?**

⇒ **Is there any difference between light and heavy drinkers in ERP's responses?**

## Method

### Participants:

- 15 heavy drinkers students (HD)
- 15 light drinkers students (LD)

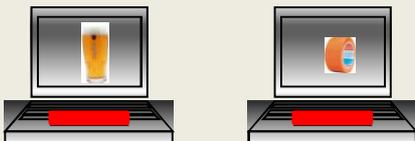
### Tasks:

#### Classical GO/NOGO with letter

- 75% go trial (25% no go trial)

#### GO/NOGO modified for alcohol

- 75% go trial (25% no go trial)
- Stimuli: alcohol vs neutral object



### Simple presentation

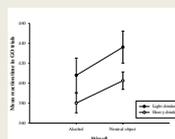
- 50% of alcohol and 50% of neutral objects

### Electrodes:

PF1, PF2, Fz, F3, F4, Cz, C3, C4, Pz

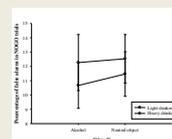
## Results

### Reaction time in GO trials



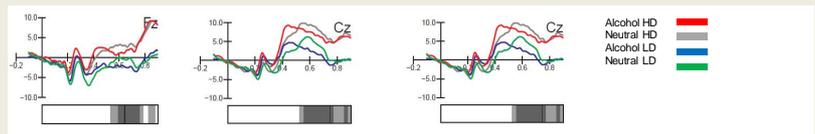
⇒ Faster for alcohol-related cues

### False alarm (FA) in NOGO trials



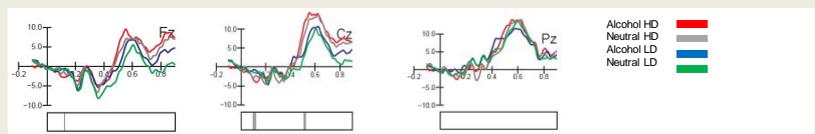
⇒ No difference in GO/NOGO modified for alcohol  
⇒ More FA for HD in classical GO/NOGO

### ERPs in GO trials



⇒ Higher P300 amplitude and lower N200 amplitude among HD in GO/NOGO modified for alcohol and no difference in classical GO/NOGO  
⇒ Shortening P300 latency for alcohol stimuli

### ERPs in NOGO trials



⇒ No group difference  
⇒ Shortening P300 latency and reduced N200 amplitude for alcohol stimuli

## Conclusions

**A similar behavioral pattern** for heavy and light drinkers was observed in the GO/NOGO modified for alcohol  
Heavy drinkers show more false alarms in the classical GO/NOGO

⇒ Heavy drinkers are impaired in their ability to refrain a response to a stimulus unrelated to alcohol

Faster responses and shortening P300 latency during processing of alcohol related cues

⇒ Increased **reactivity for alcohol-related cues**

No P300 amplitude reduction in classical GO/NOGO in heavy drinkers

⇒ This might be explained by a shorter history of alcohol consumption relative to alcohol dependent patients

Increased P300 amplitude and decreased N200 amplitude in heavy drinkers in the GO/NOGO modified for alcohol

⇒ **Higher elaborating responses in heavy drinkers when the task involved alcohol cues**

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