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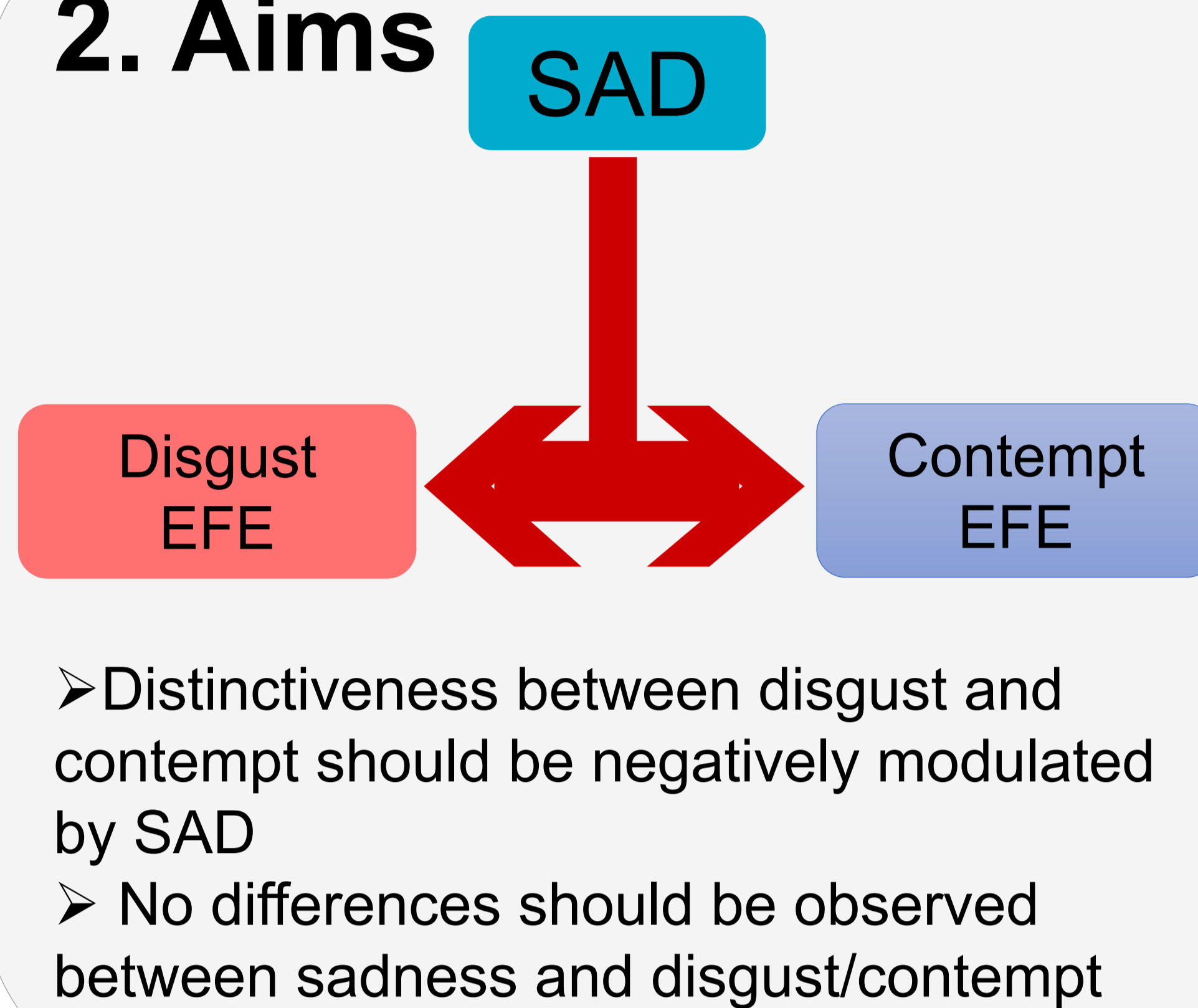
# Electrophysiological evidences for a deficit in distinguishing facial expressions of contempt and disgust in social anxiety disorder

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## 1. Introduction

- Social Anxiety Disorder (SAD) = Associated with altered processing of emotional facial expressions (EFE) signaling disapproval or hostility
- Disgust, food –related expression, linked to contempt in SAD (Rozin, Haidt & McCauley, 2000)
- ERPs provide a powerful tool to investigate the “time-course of higher level cognitive processes” (Rugg & Coles, 1997) enabling the study of emotional processing for EFEs in SAD

## 2. Aims



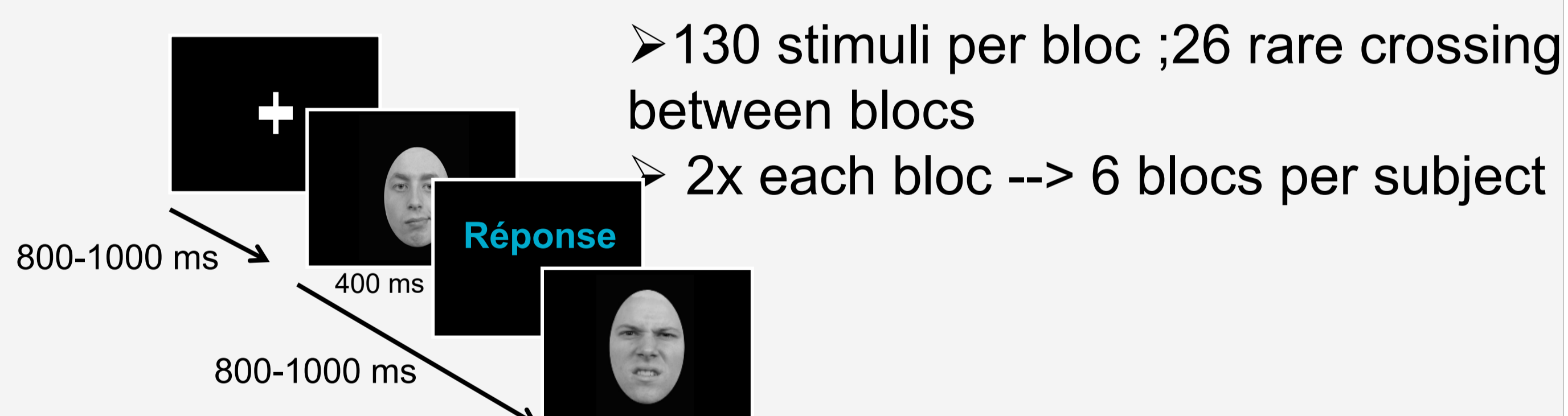
## 3. Population

- 31 university students from 18 to 24 years
  - 15 SAD subjects : LSAS 65 & STAI
  - 16 control subjects : LSAS 35 & STAI < 56

	Means comparison	P-value
High/low LSAS ratio	t(23) = -16,150	0.000
Anxious/control age ratio	t(23) = 1,363	0.186
Boy/girl ratio	t(23) = 0,802	0.431
Stai-T	t(23) = -0,833	0.413
Stai-E	t(23) = -0,868	0.394

## 4. Methodology

- Emotional oddball paradigm task: detection of rare (r) EFEs among frequent (f) EFEs + identity variation
- 3 blocs : Disgust (D), contempt (C), and sadness (S)



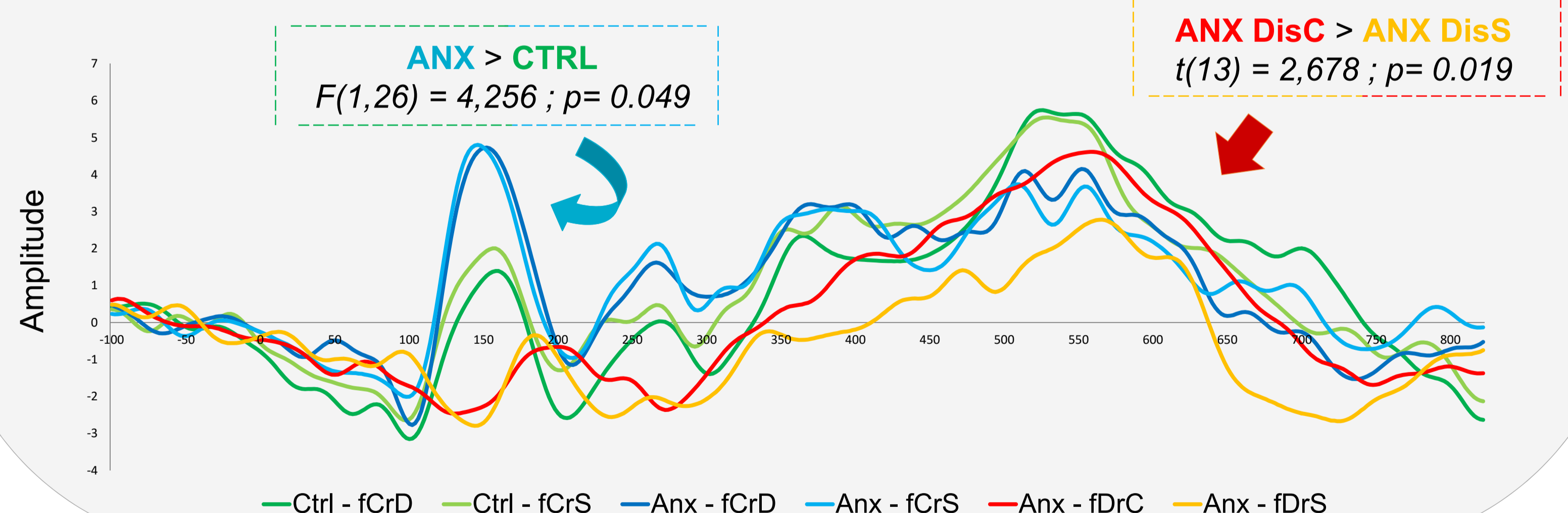
- ERPs recording : 32 channels → EEProbe System

## 5. Results

- Behavioral results (only significant results are presented)

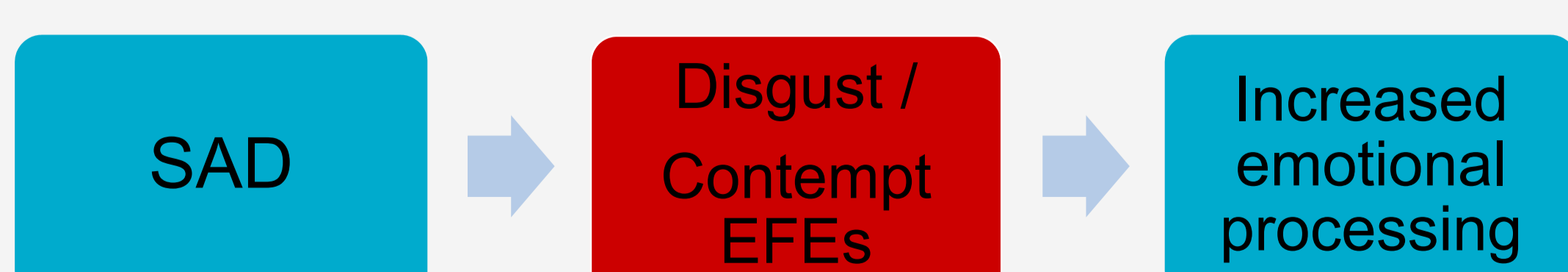
Correct response rate	Reaction time
$fCrD < fCrS$ $t(29) = 7,156$ ; $p=0.000$	
$fDrC > fDrS$ $t(29) = 4,531$ ; $p= 0.000$	
$ANX < CTRL$ in fD $F(1,28) = 3.470$ ; $p= 0.073$	

- ERP results on P100 and LPP



## 6. Discussion

- Difficulties for distinguishing contempt from disgust.
- Negative effect of sadness on overall processing on behavioral results corroborated by ERP measures :
  - Potentiated amplitudes for P100 and LPP to distinguish disgust from other EFEs ;
  - Increased early attention for emotional stimuli & sustained emotional attention when confronted with disgust and contempt.
- Effect of anxiety on overall behavioral performances when processing contempt and disgust EFEs corroborated by ERP measures :
  - Enlarged amplitudes for overall SAD subjects and between SAD subjects when disgust is involved : more effortful processing of disgust EFEs for SAD subjects.



## 7. Prospective

- N170 ERP component : effect of SAD on cortical processing of faces ?
- Further investigation of P300.
- Explore negative effect of sadness on overall processing in SAD
- Control for boy/girl ratio

### Bibliographie

- Rozin, P., Haidt, J., & McCauley, CR. (2000). *Disgust*. in M. Lewis & J.M. Haviland-Jones (Eds), *Handbook of emotions*, 2<sup>nd</sup> ed., 637-623. New-York: Guildford Press.
- Ladouceur, C., Dahl, R., Birmaher, B., Axelson, D., & Ryan, N. (2006). Increased error-related negativity (ERN) in childhood anxiety disorders: ERP and source localization, *Journal of Child Psychology and Psychiatry*, 47(10), 1073-1082.