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## How does Pet-Directed Speech affect horses?

Plotine Jardat, Ludovic Calandreau, Vitor Hugo Bessa Ferreira, Chloé Gouyet, Céline Parias, Fabrice Reigner, Léa Lansade

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# How does Pet-Directed Speech affect horses?



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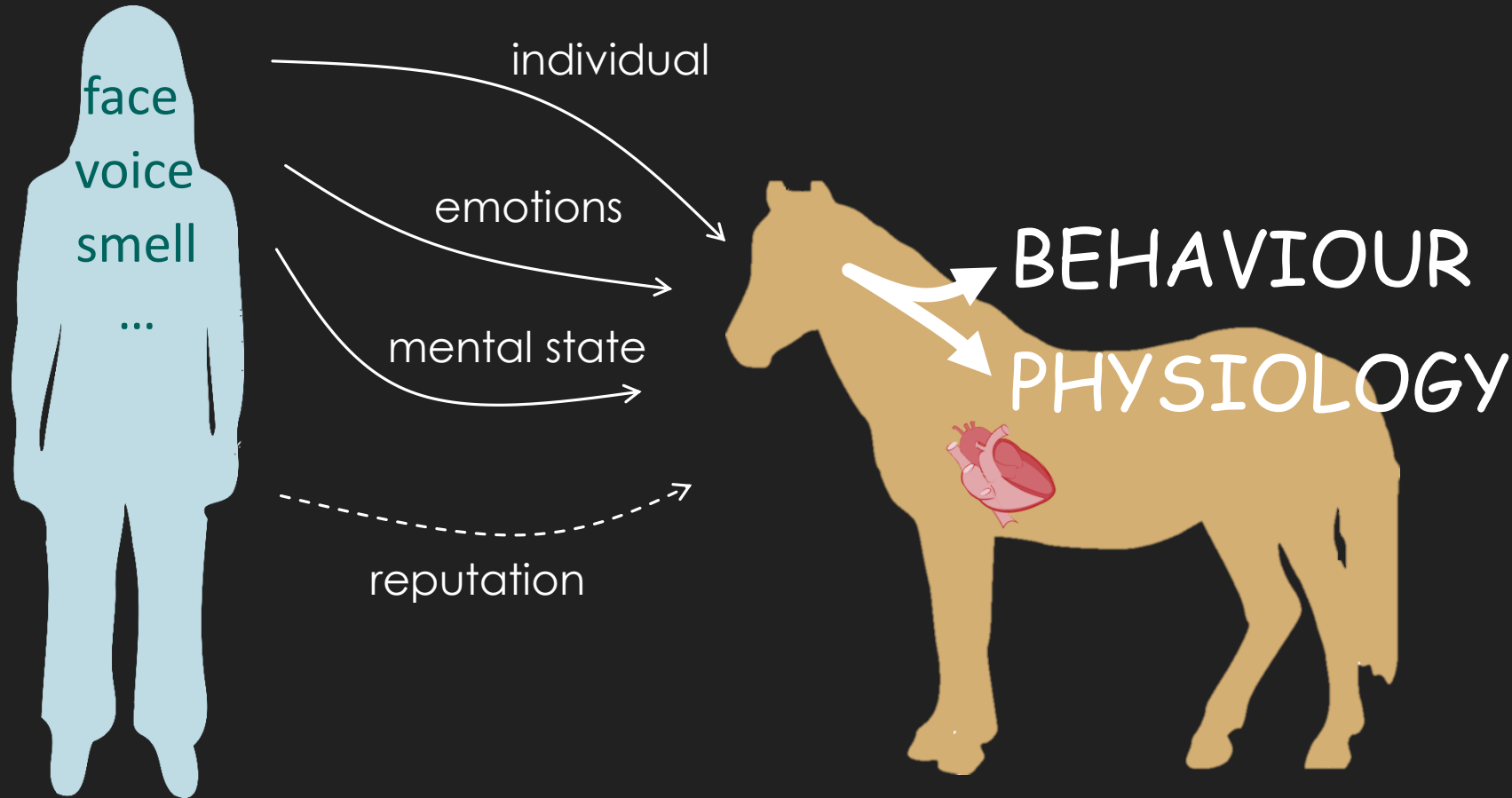


# The human-horse relationship

Proops and McComb 2010

Trösch et al. 2019

Lansade et al. 2020



# PDS and its effects in other species

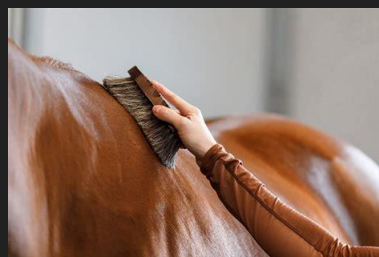
- **Pet-Directed Speech (PDS)** ↔ Infant-Directed Speech (IDS)  
≠ Adult-directed Speech (ADS)
  - High, varying pitch
  - Slow rate of speech, repeated words, simple syntax and semantics
- In infants, non-human primates and dogs:
  - Increases attention, arousal
  - Influences emotions



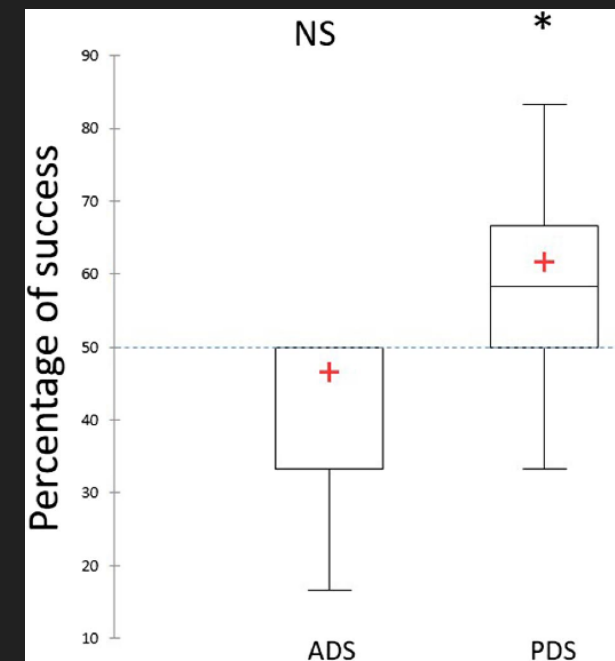
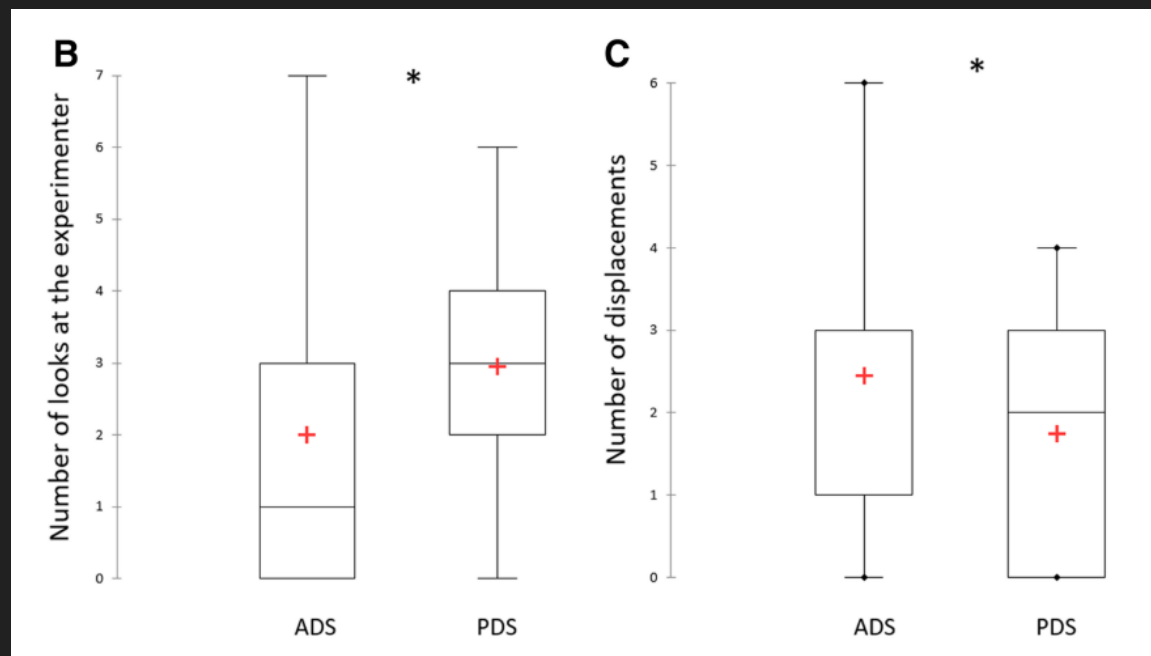
# PDS in horses

Lansade et al. 2021

During grooming



Pointing task



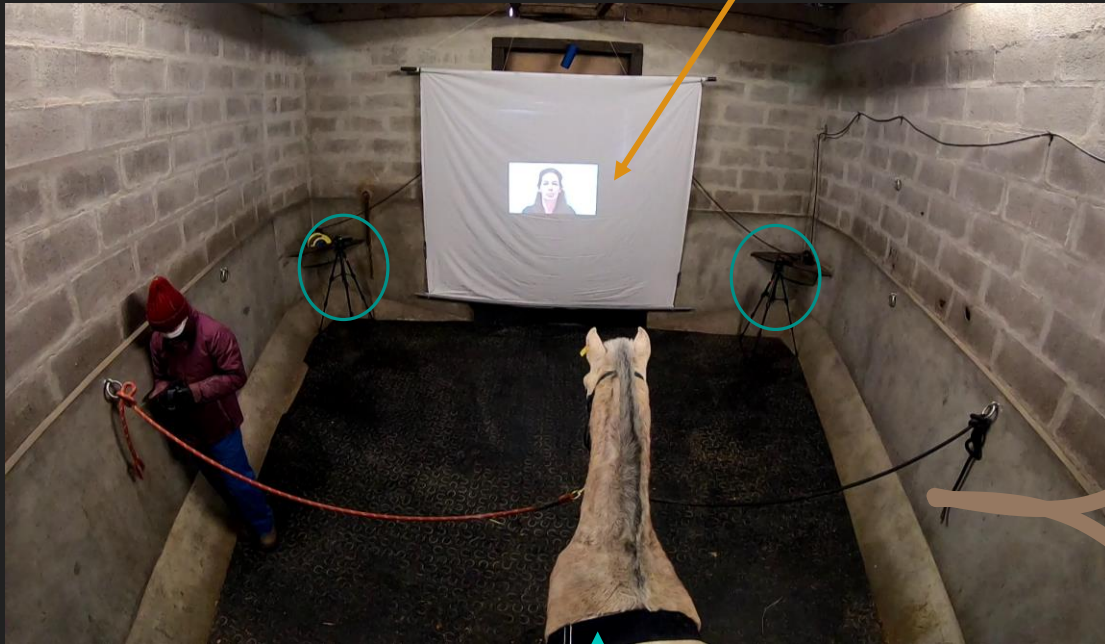
# Hypotheses

- **H1**: PDS helps to **attract** horses' **attention** and has an **arousing effect** on them
- **H2**: PDS influences the **valence of emotions** felt by horses, making them **more positive**

# Methods

Pre-registered videos of women speaking in PDS and ADS

cameras



28 female horses

Heart rate monitor

Behaviour ?

Heart rate ?

Attention index

$$\frac{A^{PDS} - A^{ADS}}{A^{PDS} + A^{ADS}}$$

H1

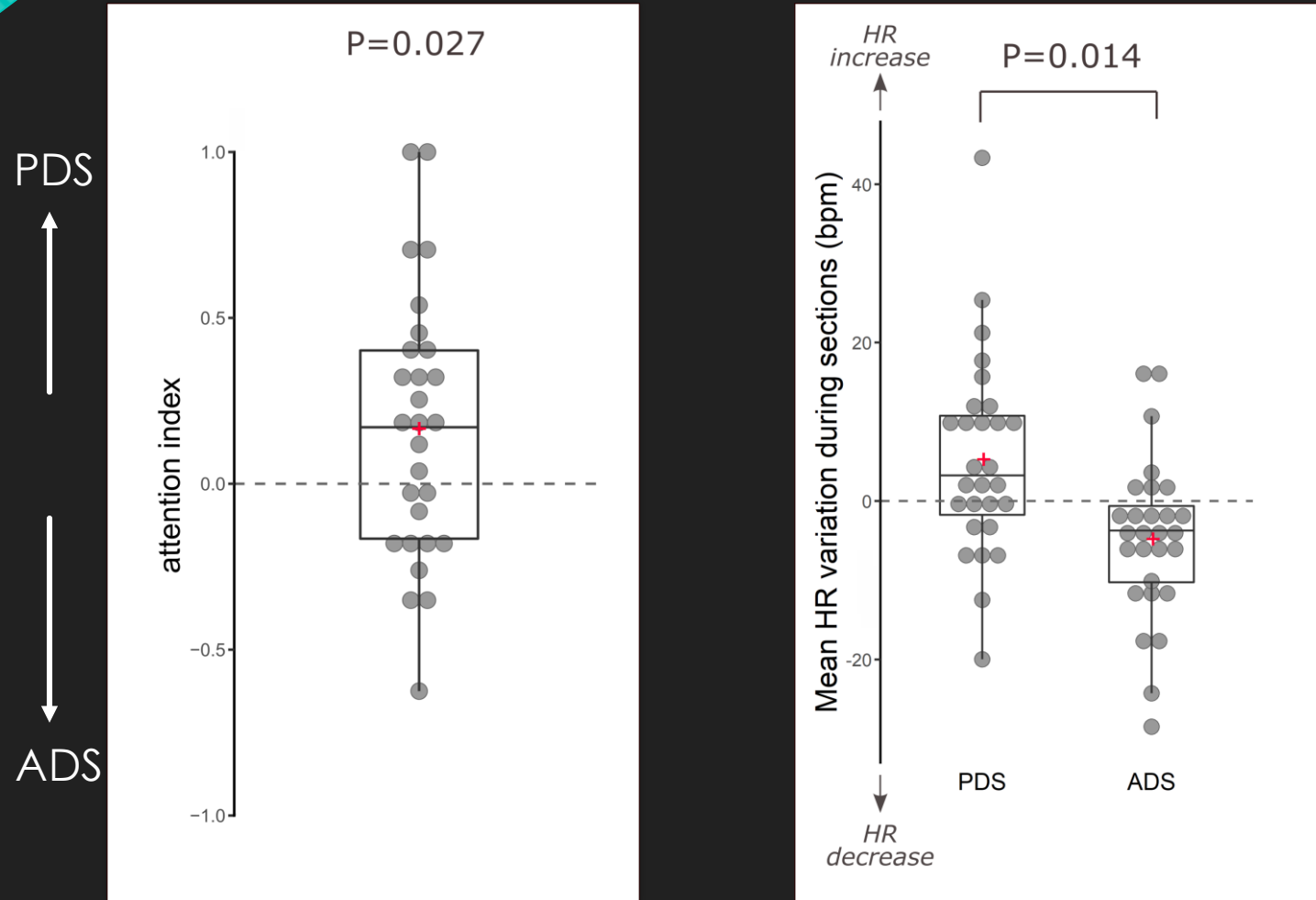
Alert/relaxed posture  
Defecations, neighs,  
snorts, shows of sclera

H2

$$HR^{\text{end}} - HR^{\text{start}}$$

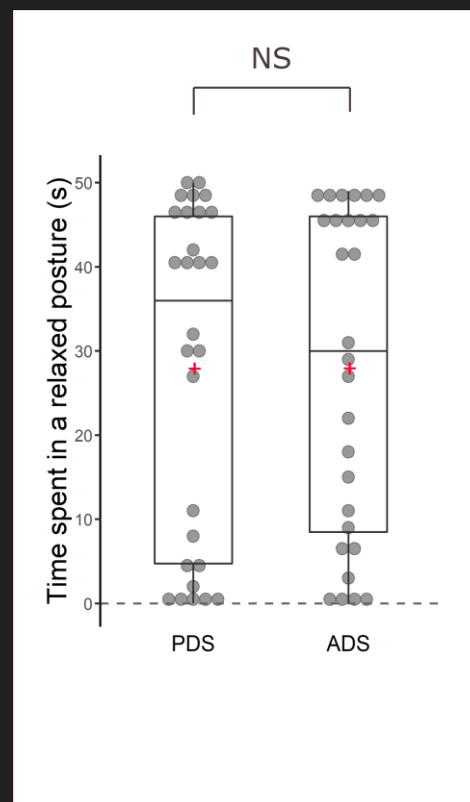
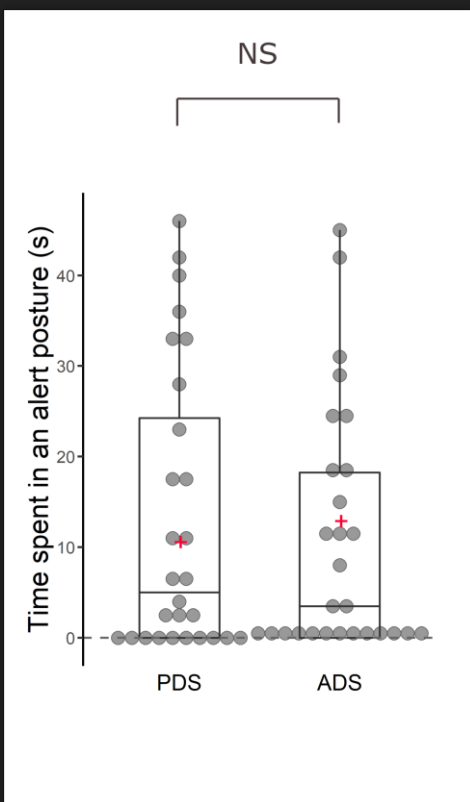
H1, H2

# Results: Attention and heart rate





# Results: emotional indicators



	ADS	PDS	p
Defecations	2/28	1/28	0.500
Neighs	4/28	2/28	0.333
Shows of sclera	7/28	5/28	0.372
Snorts	0/28	0/28	x

NS

# Discussion: Horses are aroused by PDS

- Horses were **more attentive to PDS** than ADS
- Horses' **heart rates increased more during PDS** than ADS

H1 ✓

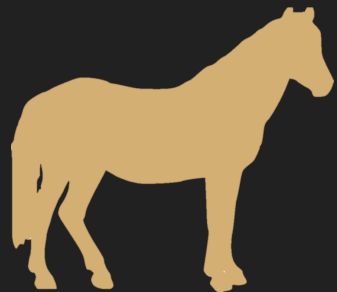
PDS helps to **attract** horses' **attention** and has an **arousing effect** on them

# Why this effect of PDS on horses?

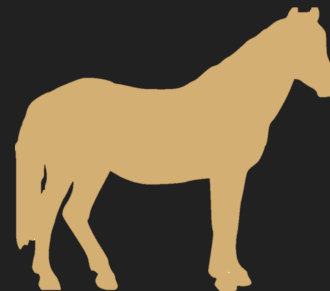
Trösch et al. 2019, 2020

Saint-Georges 2013

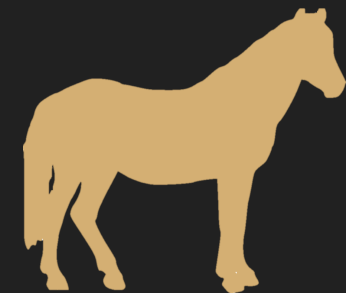
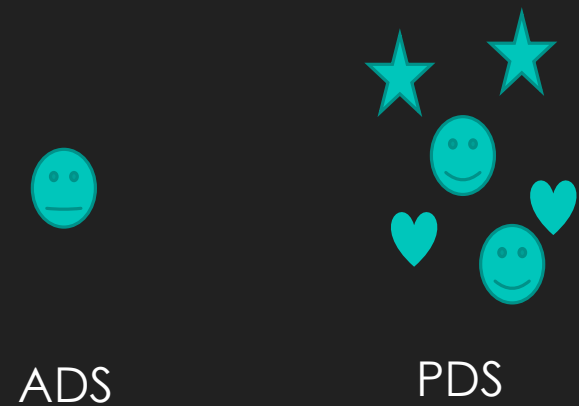
- PDS catches the ear



- PDS carries communication intent



- PDS conveys positive emotions



# Discussion: Effect of PDS on horses' emotional state

- Horses were **not more relaxed or less alert**, they did **not** show **less signs of fear**, during PDS than ADS
  - Test not fearful for horses
  - Lack of indicators for positive emotions in horses

H2 ?

No demonstrated influence of PDS on the **valence of emotions** felt by horses

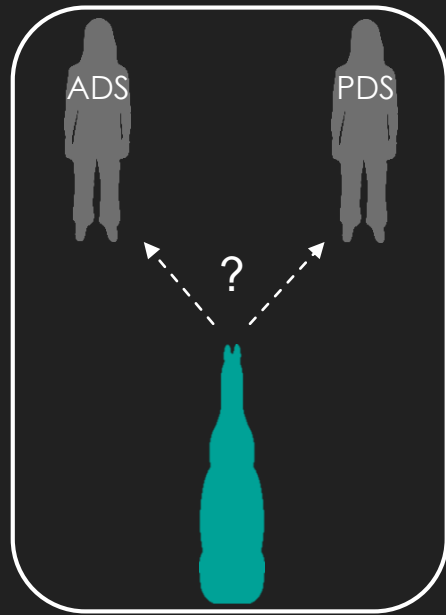
# Further experiments

Ben-Aderet et al. 2017

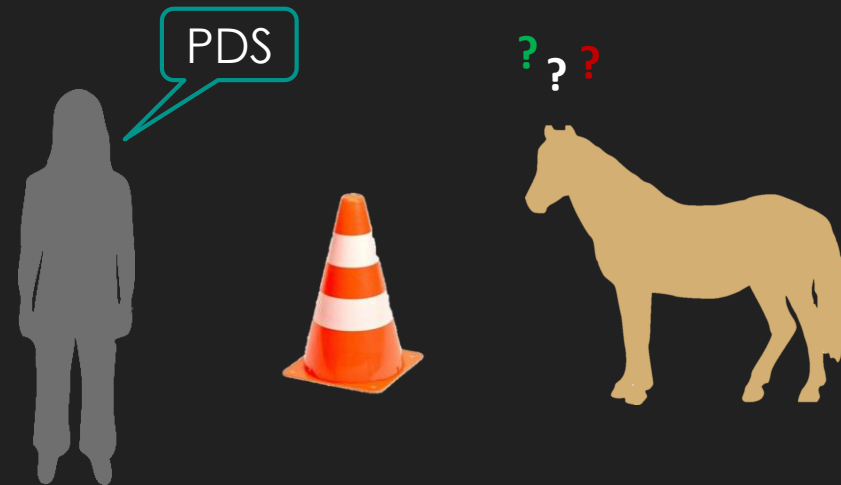
Fernald 1985

Poutaraud et al. 2018

- Preference test




- Novelty test



# Conclusion

- PDS is **arousing and attention-drawing** for horses → can be used during **human-horse interactions**
- Broadcasting **pre-registered videos of humans** allows to study horses' perception of us



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