

**PROXIMAL**  
EQUINE LIGHTING EXPERT

**Solutions d'éclairage LED**  
dédiées à la filière équine

## POSTER RÉSUMÉ

Pour des détails complets  
sur cette étude scientifique et comportementale,  
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# LED LIGHTING EASES AND SECURES THE LOADING OF HORSES AND APPEASES THEM DURING CONFINEMENT IN A STATIONARY HORSE TRAILER



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## LOADING AND TRANSPORT HORSES IN A TRAILER IS A STRESSFUL SITUATION

#1 Risks of injuries for horses and handlers

#2 Impact on horse welfare



#3 Previous studies showed that:

- Halogen Lighting: lower negative emotions during loading phase
- Coloured light: have a calming effect on horses in a box stall

Cross and al 2008; Burla and al, 2016

BUT HOW AN HOMOGENEOUS LIGHTING THROUGH CUSTOM LED SOLUTION WOULD IMPACT ON YOUNG HORSE DURING LOADING AND STATIONARY CONFINEMENT WITHIN A TRAILER?

### CHARACTERISTICS OF LED LIGHTING

Miniaturization - Easy integration

Mechanical resistance (humidity, vibrations, shocks)

Large choice of white and colours (static, dynamic, fitting with circadian rhythm)



Easy to control and adjust, by electronic systems

Long lifetime and very low maintenance

**OUR STUDY:** 22 young horses which were loaded 3 times in 3 lighting conditions every 3 weeks ± 2 days.

**GROUP I (n: 11):** Natural lighting  
WL\* = 2700 K  
WL = 6300 K

**GROUP II (n: 11):** Natural lighting  
WL = 4500 K (LF\* : 100%)  
WL = 4500 K (LF : 50%)

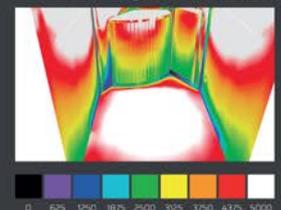
\*WL = White Light ; \*LF = Luminous Flux

**LIGHTING DATA:**  
Correlated Colour Temperature



Illuminance level / Uniformity

Values related to the illustration:  
Average illuminance: 5200 lx  
Uniformity coefficient: 0,815



### BEHAVIOURAL DATA:



EXPLORATION  
sniff, nuzzle



LOCOMOTION  
walk forward /backward, stop



ATTENTION  
stare, turn toward



DEFECATION

AS WELL AS:  
startle, snort  
blow, neigh,  
defense behaviours...

**OTHER DATA:** at resting in the stable and during trailer's approach, loading and stationary phases.

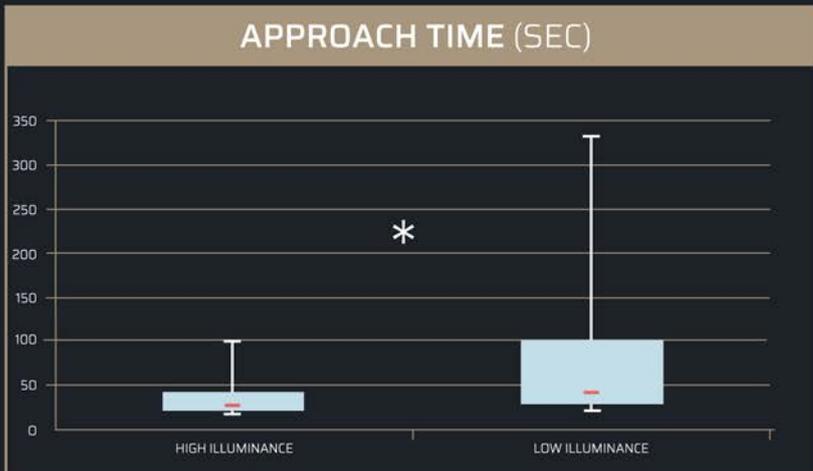


TIME  
DURATION



HEARTRATE

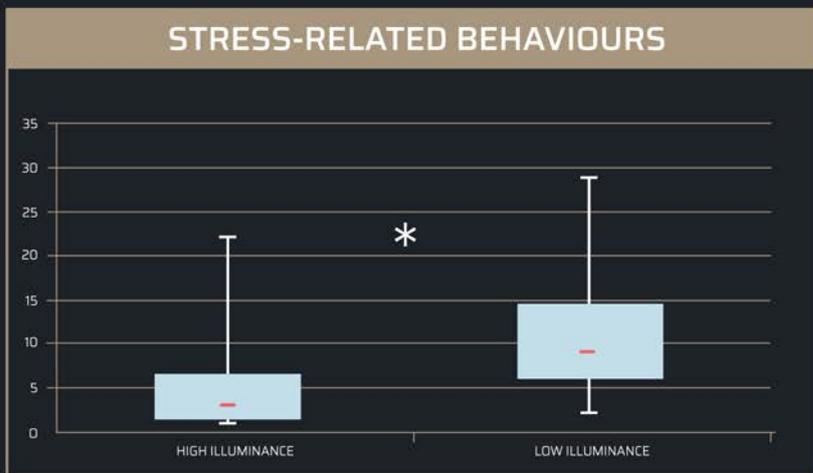
# RESULTS



**#1 On the first loading (for both groups):**

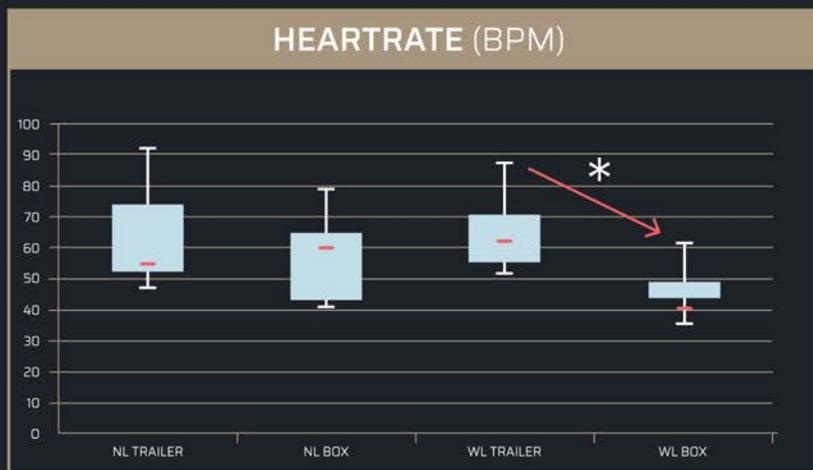
With higher illuminance level (>4500 lx)

- Less stress-related behaviours (p<0.05)
- Less time to approach (p<0.05)



**#2 Horses of GROUP I:** Faster heartrate recovery under white coloured light ranges from the stationary trailer to the box. (p<0.05)

NL = Natural light ; WL = White light



**CONCLUSION:** Homogeneous LED lighting with high illuminance level inside the trailer is recommended to reduce behavioural and physiological stress during loading and confinement in a stationary trailer.

**Acknowledgment:** Thanks to Bruno Duvault and his team (PROXIMAL company), Jean Luck and Xavier Martin respectively owner and stallion manager of the Haras de la Barbotière (Calvados/France), Gregory Rulquin (CEO of Cheval Liberté/France), Jean-Marc Barbot (CEO of Vans Barbot/France) as well as Normandie Incubation (Business Incubator/France) and Hippolia (Horse Industry Competitiveness Cluster/France).