



PROXIMAL

EQUINE LIGHTING EXPERT

LED lighting solutions
dedicated to the equine sector

SUMMARY POSTER

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and behavioural study, please contact **PROXIMAL**

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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 \pm 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

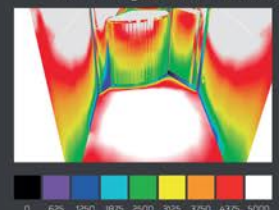
LIGHTING DATA:

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

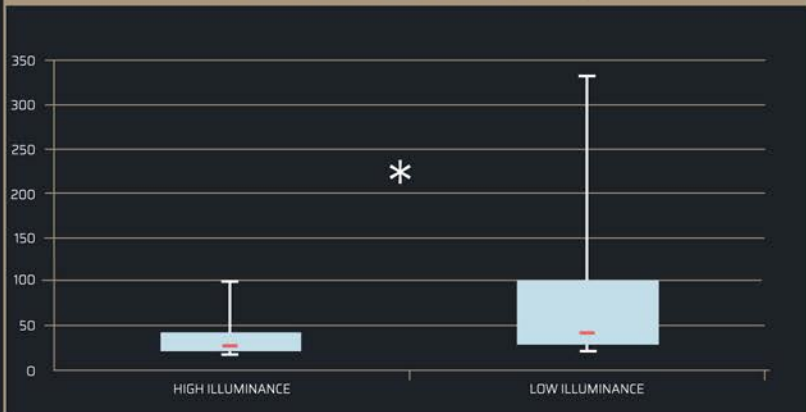


HEARTRATE

RESULTS



APPROACH TIME (SEC)



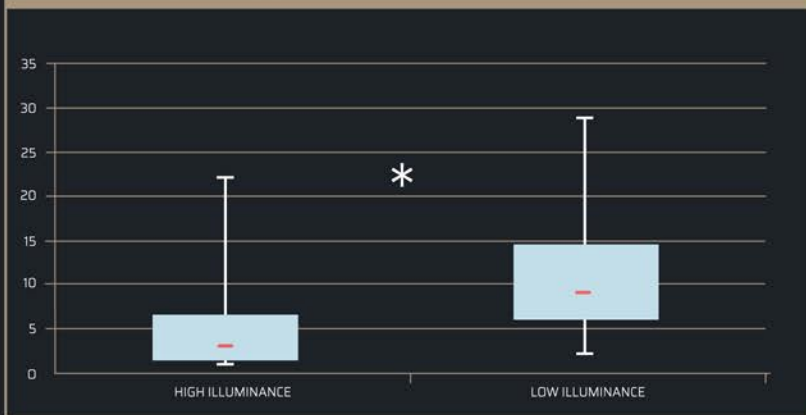
#1 On the first loading (for both groups):

With higher illuminance level (>4500 lx)

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



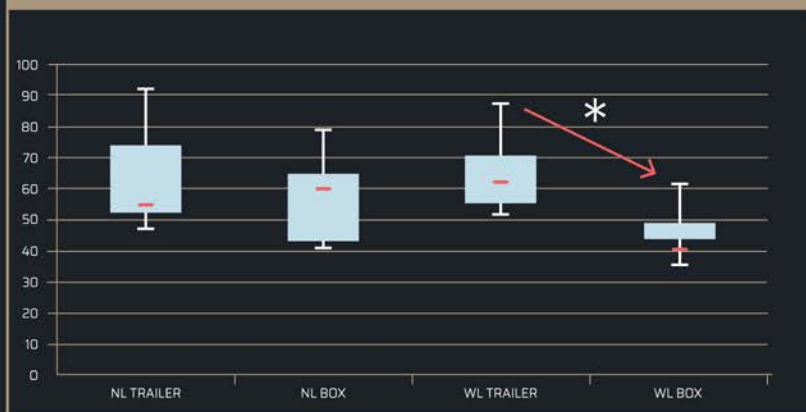
STRESS-RELATED BEHAVIOURS



#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

HEARTRATE (BPM)



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.

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