



Can surface eye temperature be used to indicate a stress response in seals (*Phoca vitulina*)?

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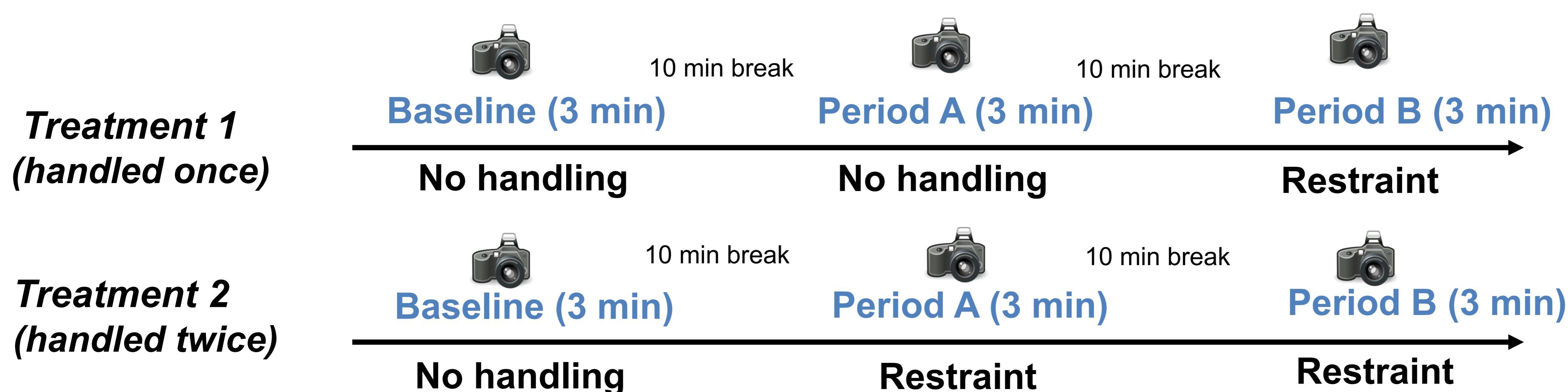
Introduction

- Many mammalian species demonstrate a change in eye temperature (ET) in response to stressful, and possibly to painful routine procedures.
- Non-invasive infrared thermography (IRT) is increasingly being used to measure physiological stress responses in animals via changes in ET.

Objective: To determine whether the ET of harbour seal pups changes in response to routine handling (capture and restraint)

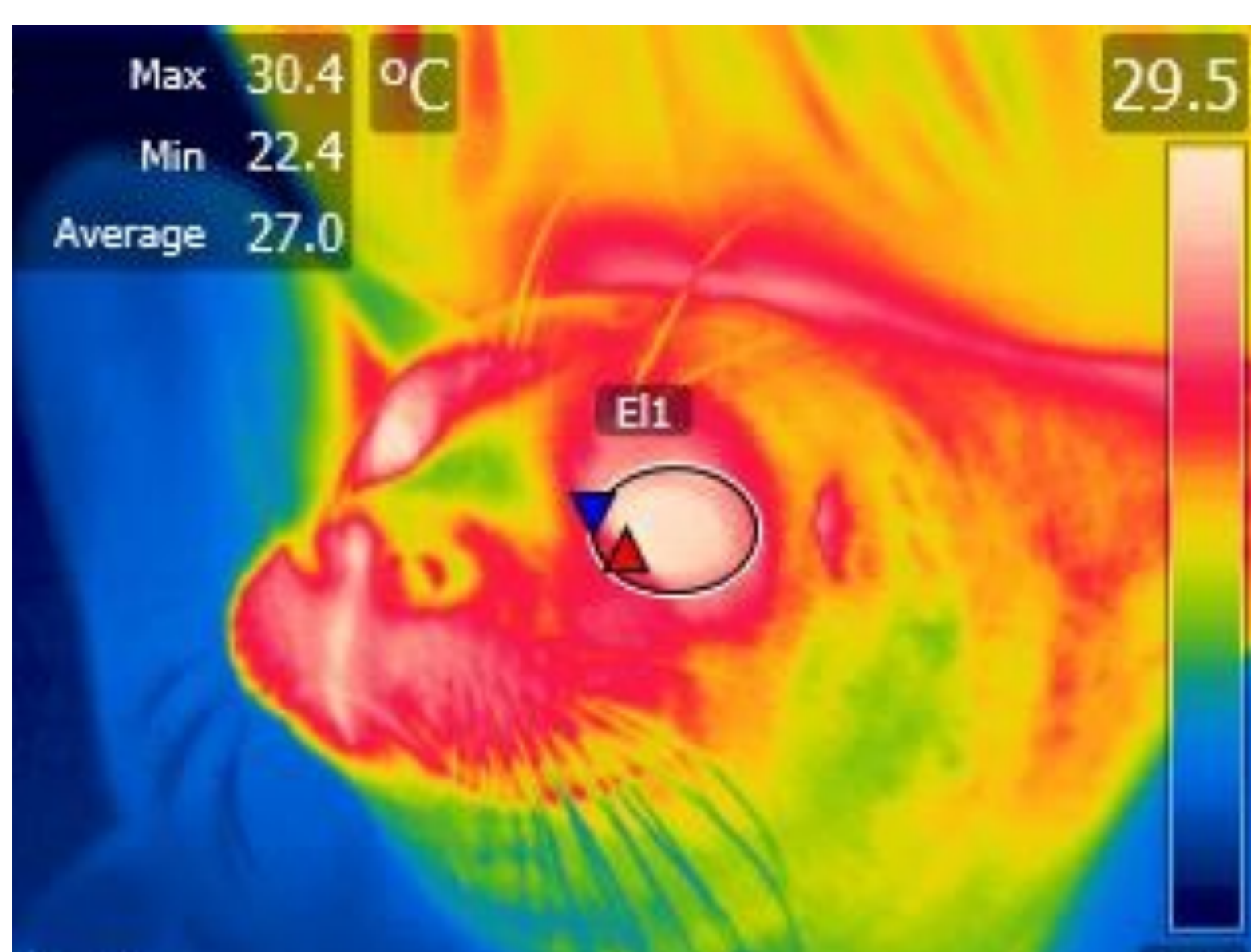
Methods

- Healthy ~ 90 d old pups randomly allocated to one of 2 treatments ($n = 26$ per treatment)
- ET recorded every ~10s with FLIR T300 IRT camera



- Max ET calculated for each image using FLIR Tools + software
- Images from each 3-min recording period of each pup were then pooled

Results



- Compared to baseline, ET of pups restrained the first time increased 0.5 ± 0.18 ° C (mean \pm SE, $p < 0.01$) more than that of pups not handled.
- ET of pups that underwent a second handling increased a further 0.7 ± 0.08 ° C (mean \pm SE, $p < 0.001$) from the first time they were handled to the second time.

Conclusions

- Higher ET of handled vs. non-handled pups suggests that handling and restraint cause a physiological stress response detectable via IRT.
- Increased ET the second time pups were handled suggests the first handling likely was aversive, resulting in an anticipatory response to their second handling.
- These results show promise for the use of ET to indicate a stress response and for evaluating routine procedures in seals.