

Effects of piglet age on various indicators assessing pain at tail docking, with or without analgesia



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Pig tails are often docked in order to prevent tail biting later on. According to farms, it is carried out in the first two days but may occur later, in combination with other management procedures. An experiment was conducted in order to evaluate the effects of age and analgesia on pain related to tail docking. Since pain is complex to evaluate, physiological, behavioural and zootechnical indicators were used.

Material and methods

- 3 treatments (T)**
 x { Placebo + tail docking (Placebo)
 Meloxicam (0,4 mg/kg) + tail docking (Melo)
 Sham docking (Sham)
- 2 ages**
 { 2 days old
 5 days old

Analysis

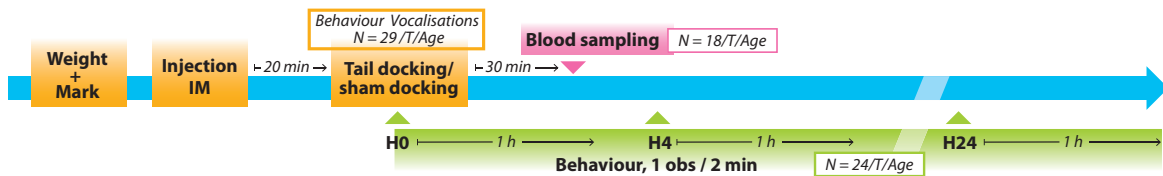
- H0 vs H4-H24
- Mixed linear model (Weight, Vocalisation, Cortisol, Behaviour)
- Scarce behaviour: binary transformation
- Chi-square: behaviour at tail docking

Measurements

- **Weight:** birth, before injection, weaning
- **At tail docking:** vocalisation, behaviour (legs mvmt/escape/twisting/stiffness)
- **After tail docking:** plasma cortisol / behaviour (tab 1)

Table 1: post operative behavioural measurements

Postures	Lying down, sitting, standing, kneeling
Localisation	Sow proximity (< 10 cm), lamp, corner, behind the trough, other
Behaviour (Mutually exclusive)	Pain related: trembling, spasms, huddling up, hesitant walk Non specific: suckling, playing, exploring, normal walk, drinking, elimination, rest
Other pain B.	Isolated, prostrated, stiffness, hindquarter protecting, desynchronised activity with congeners
Tail movement	When records are possible: slow, rapid, trembling, tucked under, immobile



Results

Tail docking: short term pain (fig 1)

- Very few indicators of pain related to tail docking
- **Analgesia:** low impact on pain
- Low intensity pain → low usefulness of pain killer

Age x tail docking: no significant interaction

Age: many differences between D2 and D5 (tab 2)

- More behaviours expressed on D5, ie non specific behaviour
- Some indicators of pain are age related
 - **Cortisol:** D2: 103 ± 4.2 ng/ml vs D5: 71 ± 2.9 ng/ml, P<0.001
 - **Vocalisation:** D2: 89.6 ± 1.4 dB vs D5: 98.3 ± 1.3 dB, P<0.001
 - **Trembling, Isolation:** effect of ambient temperature
 - **Behaviour at tail docking:** vitality ? length of procedure ?

Fig 1: Treatment effect on vocalisation, cortisol and tail movements

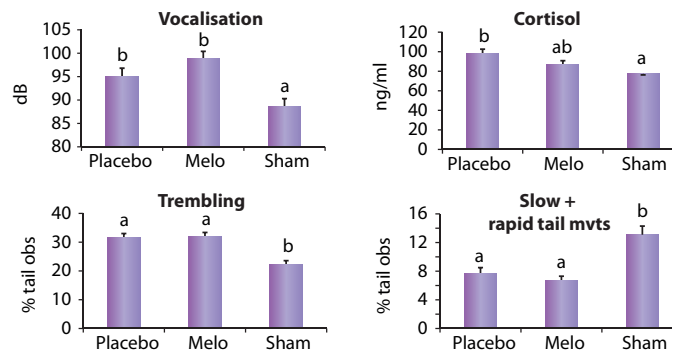


Table 2: Treatment and age related indicators (P < 0.05, the position indicates where the value is the highest)

	Behaviour at tail docking	Pain related	Non specific	Localisation	Posture	Physiological	Tail movement	Zootechnical
Age at tail docking	D2		Trembling	Heat lamp		Cortisol		Weaning weight (t)
	D5	> 1 behaviour	Isolation	Play Explore Drinking Normal walk Elimination	Corner	Standing	Vocalisation Slow Slow+rapid	
Tail docking	> 1 behaviour				Kneeling	Cortisol Vocalisation	Slow Rapid Slow+rapid Trembling	

t: P < 0.1

Conclusion

Some observations indicate that tail docking is painful. The use of an AINS before tail docking has no clear effect to relieve that pain. It is difficult to assess the effect of age at tail docking on pain. Piglet development is important in the first days of life, and many common pain indicators are sensitive to this development, regardless of the procedure. An early age at the intervention seems to be better, as suggested by a trend to a better weaning weight and a lower occurrence of body movements at tail docking.

