



Effects of an intensified human-animal interaction on tail biting during the rearing period

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Introduction

TAIL BITING





Introduction





Introduction





Introduction





Materials & Methods

Animals & Housing

- **Conventional farrow-to-fattening farm**
- **Observation period:** November 2016 to February 2017
- **662 crossbred piglets** (Duroc x (Yorkshire x Landrace))
 - 4 batches with 4 piglet groups per batch
 - Single-sex groups (max. 50 animals/pen)
 - Undocked tails
 - Entire males





Materials & Methods

Experimental setup



**Trial group
(TG)**

Intensified human-animal interaction

- One person
- 3 days/week, 15 min/pen
- Speaking calmly
- Stroking
- Providing a handful of chopped straw



Materials & Methods

Experimental setup



**Trial group
(TG)**



**Control group
(CG)**

Intensified human-animal interaction

- One person
- 3 days/week, 15 min/pen
- Speaking calmly
- Stroking
- Providing a handful of chopped straw

Only routine daily animal control

- Visual inspection
- No further interactions with animals



Materials & Methods

Human approach test (HAT) (Thodberg et al., 1999)

- **Recording schedule:** Once a week during the rearing period (8 scorings/pen)
- The observer entered the pen and stood directly in front of the pen walls without speaking or further movements
- **Latency to approach:** Time until the first piglet physically touched the observer





Materials & Methods

Scoring – Tail lesions (German national scoring scheme for pigs, 2016)

No lesion



Superficial lesion



Small lesion



Large lesion



- **Recording schedule:** Once a week during the rearing period (8 scorings/pen)



Materials & Methods

Scoring – Tail losses (German national scoring scheme for pigs, 2016)

Original length



Partial loss < 1/3



Partial loss < 2/3



Partial loss \geq 2/3



- **Recording schedule:** Once a week during the rearing period (8 scorings/pen)



Materials & Methods

Statistical analysis

	HAT
SAS® (9.4) procedure	PROC MIXED
Distribution	Normal (after log-transformation)
Fixed effects	
Group (control group, trial group)	✓
Batch (1, 2, 3, 4)	✗
Gender (male, female)	✓
Week of age (4, 5, 6, 7, 8, 9, 10, 11)	✓
Interactions	
Group * Batch	✗
Group * Week of age	✓



Materials & Methods

Statistical analysis

	HAT	Tail lesions
SAS® (9.4) procedure	PROC MIXED	PROC GLIMMIX
Distribution	Normal (after log-transformation)	Multinomial (cumlogit link function)
Fixed effects		
Group (control group, trial group)	✓	✓
Batch (1, 2, 3, 4)	✗	✓
Gender (male, female)	✓	✓
Week of age (4, 5, 6, 7, 8, 9, 10, 11)	✓	✓
Interactions		
Group * Batch	✗	✓
Group * Week of age	✓	✗

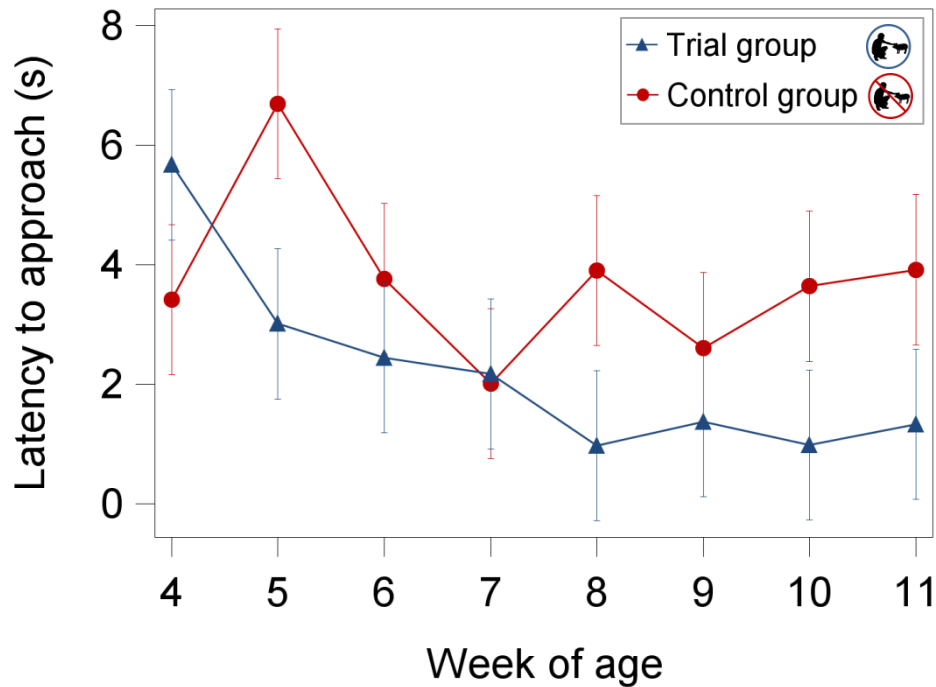


Materials & Methods

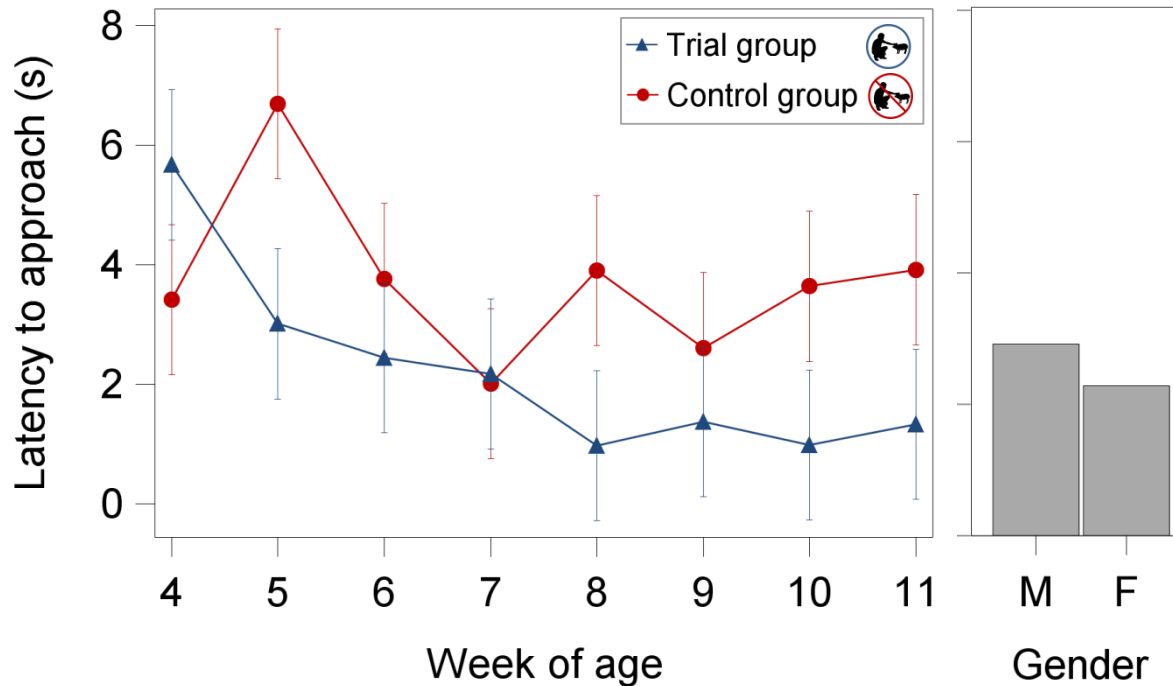
Statistical analysis

	HAT	Tail lesions	Tail losses
SAS® (9.4) procedure	PROC MIXED	PROC GLIMMIX	PROC GLIMMIX
Distribution	Normal (after log-transformation)	Multinomial (cumlogit link function)	Multinomial (cumlogit link function)
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Week of age (4, 5, 6, 7, 8, 9, 10, 11)	✓	✓	✗
Interactions			
Group * Batch	✗	✓	✓
Group * Week of age	✓	✗	✗

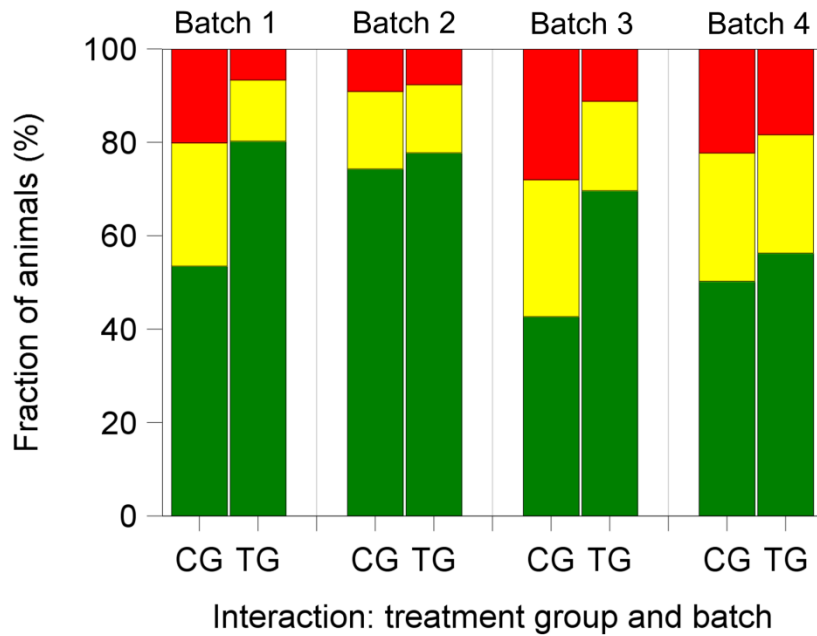
Human-approach test – LSMeans \pm standard error (retransformed)



Human-approach test – LSMeans \pm standard error (retransformed)



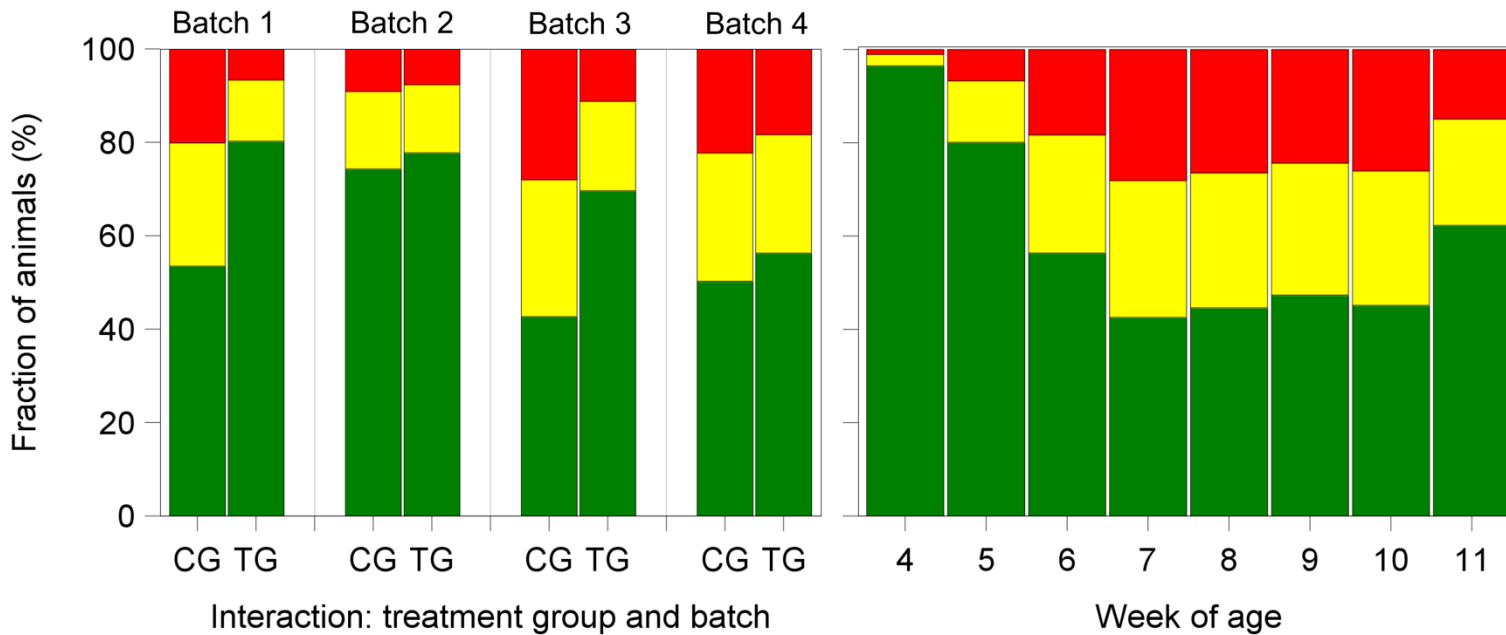
Tail lesions – LSMeans



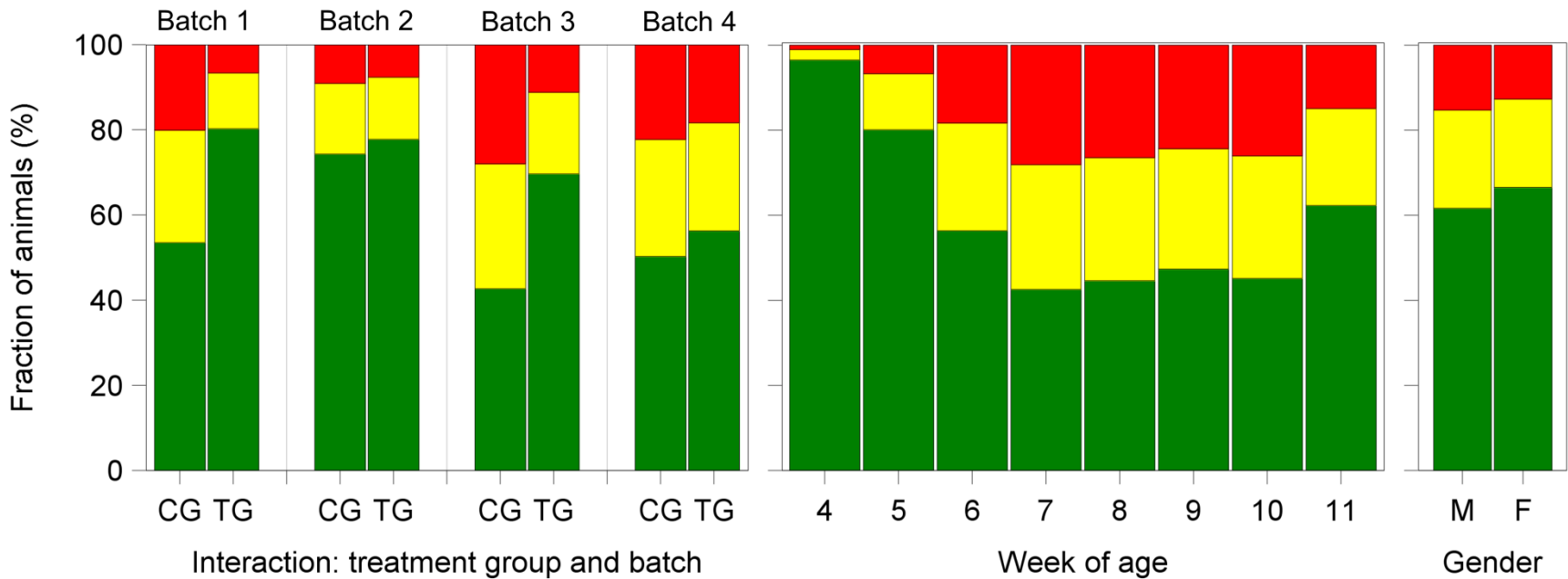


Results

Tail lesions – LSMeans



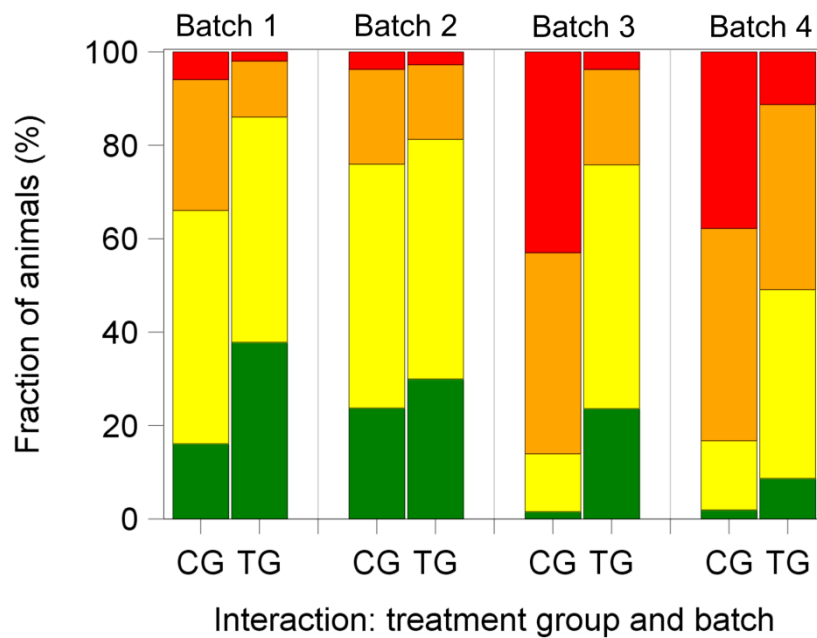
Tail lesions – LSMeans





Results

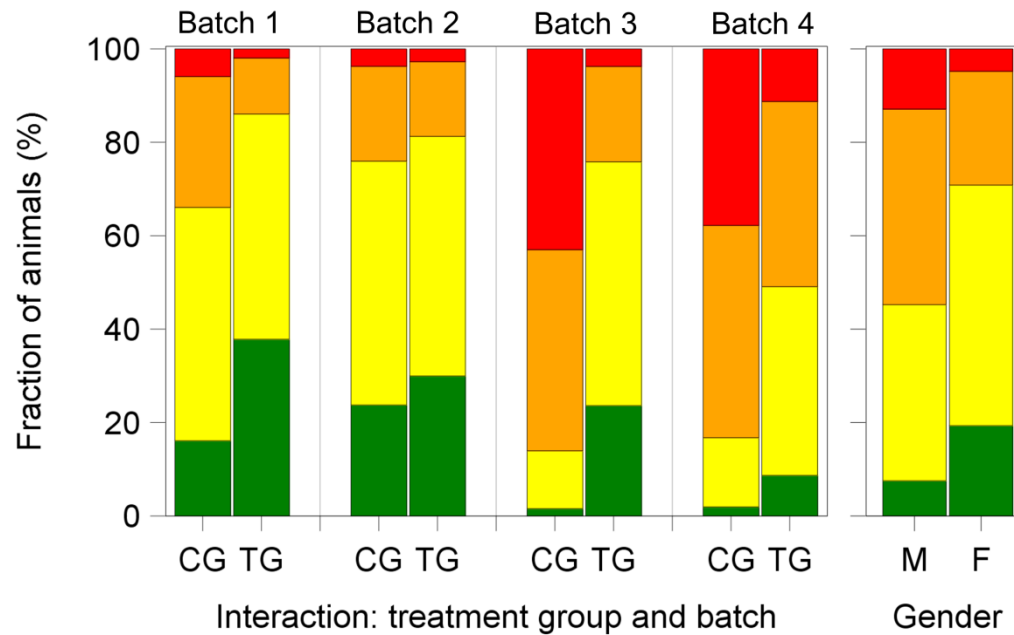
Tail losses – LSMeans





Results

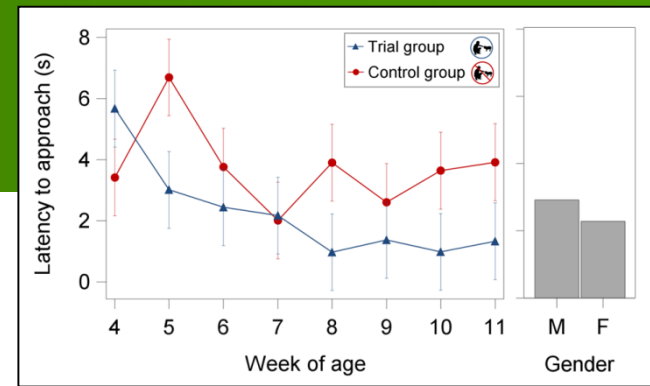
Tail losses – LSMeans





Discussion

Human-approach test



Interaction: Treatment group and week of age

- Trial group: Clear decrease of the latency to approach
- Control group: More variation, overall consistent level

- **Habituation effect due to increasing number of tests** (Hemsworth et al., 1986; Hemsworth and Barnett, 1992; Scheffler et al., 2014)
- **Reduced fear due to regular gentle handling** (Hemsworth and Barnett, 1991; Jones and Waddington, 1993; Pajor et al., 2000)
- **Quality of handling is most important** (Hemsworth et al., 1986; Andersen et al., 2006)

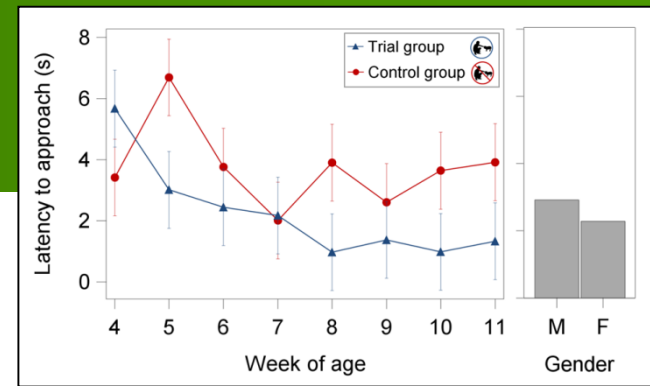


Discussion

Human-approach test

Gender

- Lower latency to approach for female piglets
 - Higher motivation to explore novel stimuli for female piglets (Brown et al., 2009)
 - Lower basal cortisol concentration for female piglets (Lay, Jr. et al., 2002)
 - Allowance of more stroke attempts for female piglets (Oliveira et al., 2015)
 - Female piglets are less susceptible to stress and are less fearful compared to male piglets (Lay, Jr. et al., 2002; Brown et al., 2009)



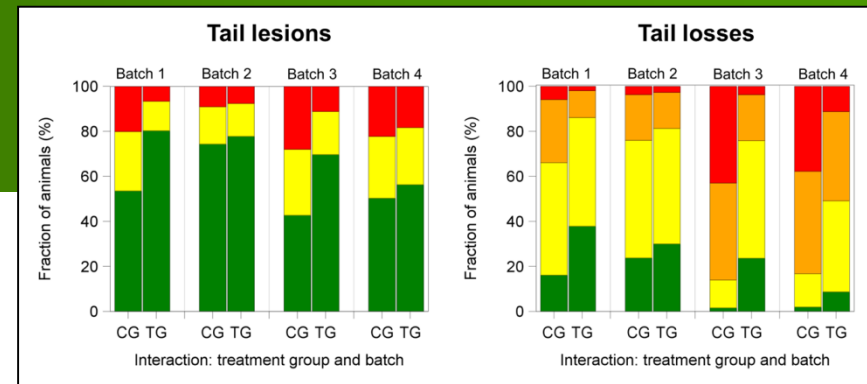


Discussion

Tail lesions & Tail losses

Interaction: Treatment group and batch

- Trial group: Lower amount of tail lesions and tail losses in all four batches
 - Reduced stress and fearfulness in trial group (Schrøder-Petersen and Simonsen, 2001; Ursinus et al., 2014)
 - Enhanced occupation of the animals in the trial group (more variety in the daily routine, chopped straw) (Day et al., 2002; Fraser et al., 1991; Veit et al., 2016; Zonderland et al., 2008)



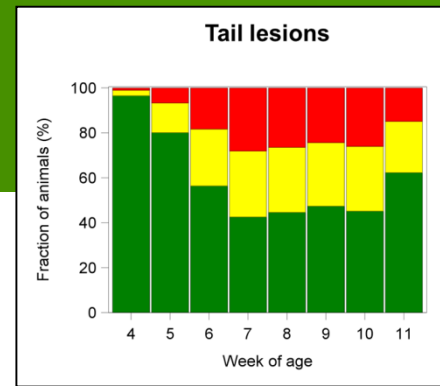


Discussion

Tail lesions & Tail losses

Week of age (Tail lesions)

- Two-to-three-week shift in the occurrence of tail lesions (Abriel and Jais, 2013, 2014; Veit et al., 2016, 2017)
 - Measuring only the outcome of tail biting behaviour (tail lesions and tail losses, not the active behaviour)
 - Stress due to weaning process with large number of changes (e.g. separation from the sow, new pen mates, new environment, changed feeding) (Hötzel et al., 2011; Veit et al., 2016)
 - Fail to control stressful situations using evolved coping strategies (Wechsler, 1995)



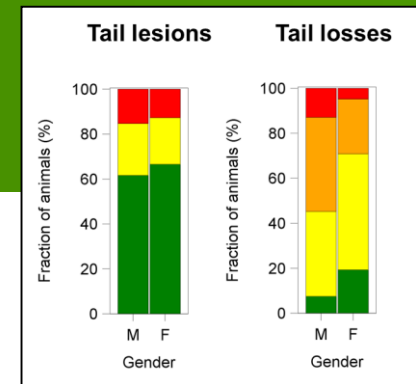


Discussion

Tail lesions & Tail losses

Gender

- Female piglets: Fewer tail lesions and less tail losses compared to male piglets
- No clear pattern which gender is most likely to be a tail biter or to be tail bitten (Breuer et al., 2003; Moinard et al., 2003; Schrøder-Petersen et al., 2003; Taylor et al., 2010)
- Higher tendency for female piglets to perform severe tail bites (Brunberg et al., 2011)
- More tail damage in all female groups compared to all male groups (Zonderland et al., 2010)





Conclusion

Intensified human-animal interaction influenced the animals' behaviour towards the human (HAT) as well as towards their pen mates (Tail lesions & Tail losses)

Trial group showed better results compared to the control group

- Lower latency to approach
- Fewer tail lesions
- Less tail losses



**Trial group
(TG)**



Possible explanations

- Less fearfulness, less stress
- Enhanced occupation



Conclusion

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**Trial group
(TG)**



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- Enhanced occupation

**Thank you
for your
attention!**





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