

**60th Annual Meeting of the European Federation of Animal Science
(EAAP), Barcelona, Spain, August 24 – 27, 2009, Session 35**



Impact of general anaesthesia and analgesia on post-castration behaviour and performance of piglets

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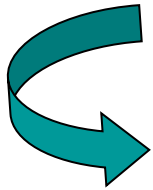


Introduction



→ Castration of (< 7 day old) piglets without anaesthesia

- Castration is a painful procedure
- Alternatives for castration without anaesthesia must be found



Research is needed on the welfare aspects of general anaesthesia and analgesia

(PIGCAS ; EU-Report 2008)

Ketamine and Azaperone	: currently licensed for use in pigs
Meloxicam	: used for post-surgical analgesia



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Aim of the study

Analysis of piglet behaviour and performance before and after castration for an evaluation of the welfare benefit of general anaesthesia in combination with analgesia



Animals and Methods

82 piglets (5-7 d > 2 kg) in 3 treatments

1. → **Control** (→ castration without *anaesthesia*) N= 29

2. → **Meloxicam** (Metacam[®], 0.4mg/kg → *nonsteroidal anti-inflammatory*) N= 24

3. → **Combination:** Meloxicam (Metacam[®], 0.4mg/kg) N=29

Neuroleptanalgesia {
+ Azaperon (Stresnil[®], 2mg/kg)
→ *neuroleptic sedative*
+ Ketamine (Ursotamin[®], 25mg/kg)
→ *anaesthetic with analgesic properties*



→ Application 10 min before castration



Animals and Methods

Behavioural analysis

- „blind“ observation
- 3 h before castration
- 3 h after castration



- Separation from the sow 3 h after castration to protect anaesthetized piglets from being crushed
- Wooden board for separation



Animals and Methods

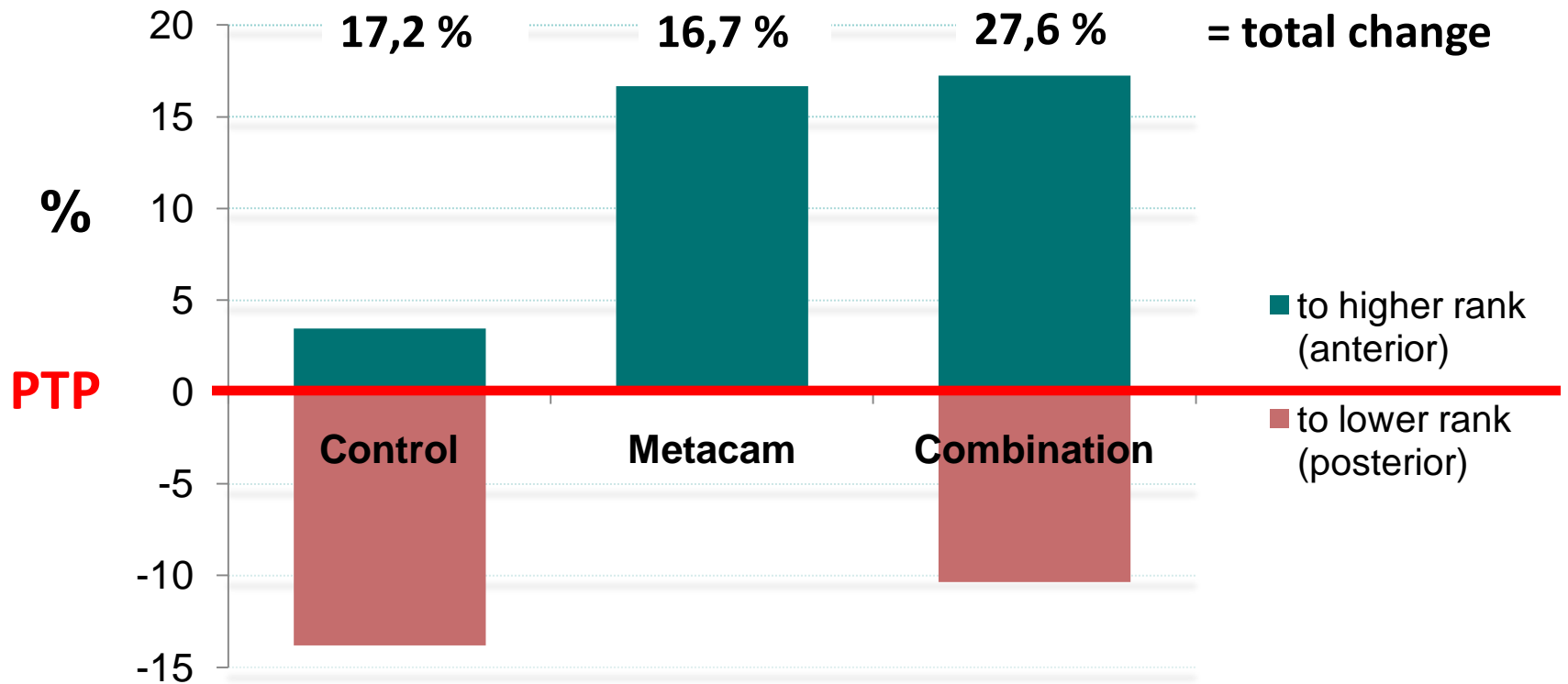
Behavioural analysis

- **Suckling duration** (lying at sows` teat)
- **Suckling position (rank)**
 - Preferred teat position
 - Suckling order stability
(# teats used/ piglet)
- **Physical activity** (standing, walking)
- **Daily weight recordings**
(before and after)



Results

Change from Preferred Teat Position (**PTP**) after separation

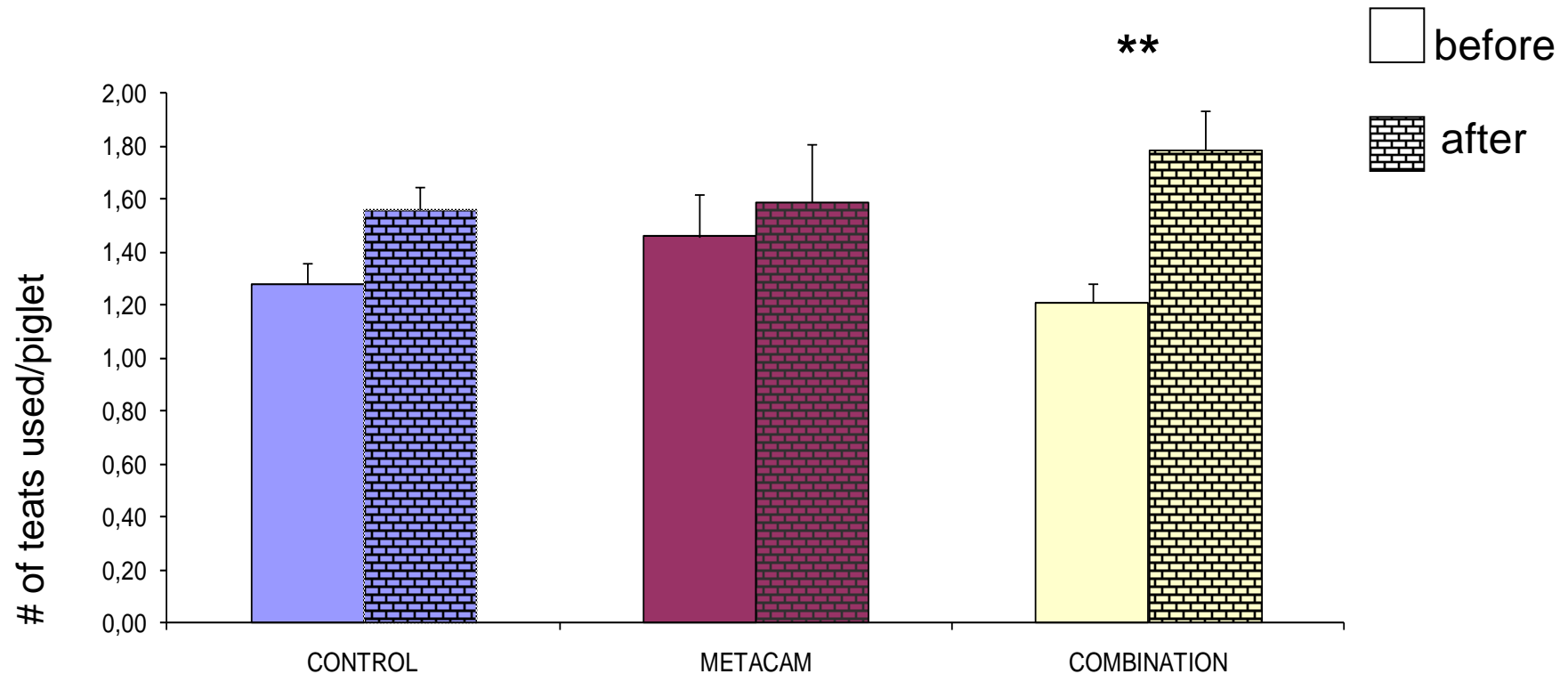


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Results

Suckling order stability (# of teats used /piglet)



paired Wilcoxon test



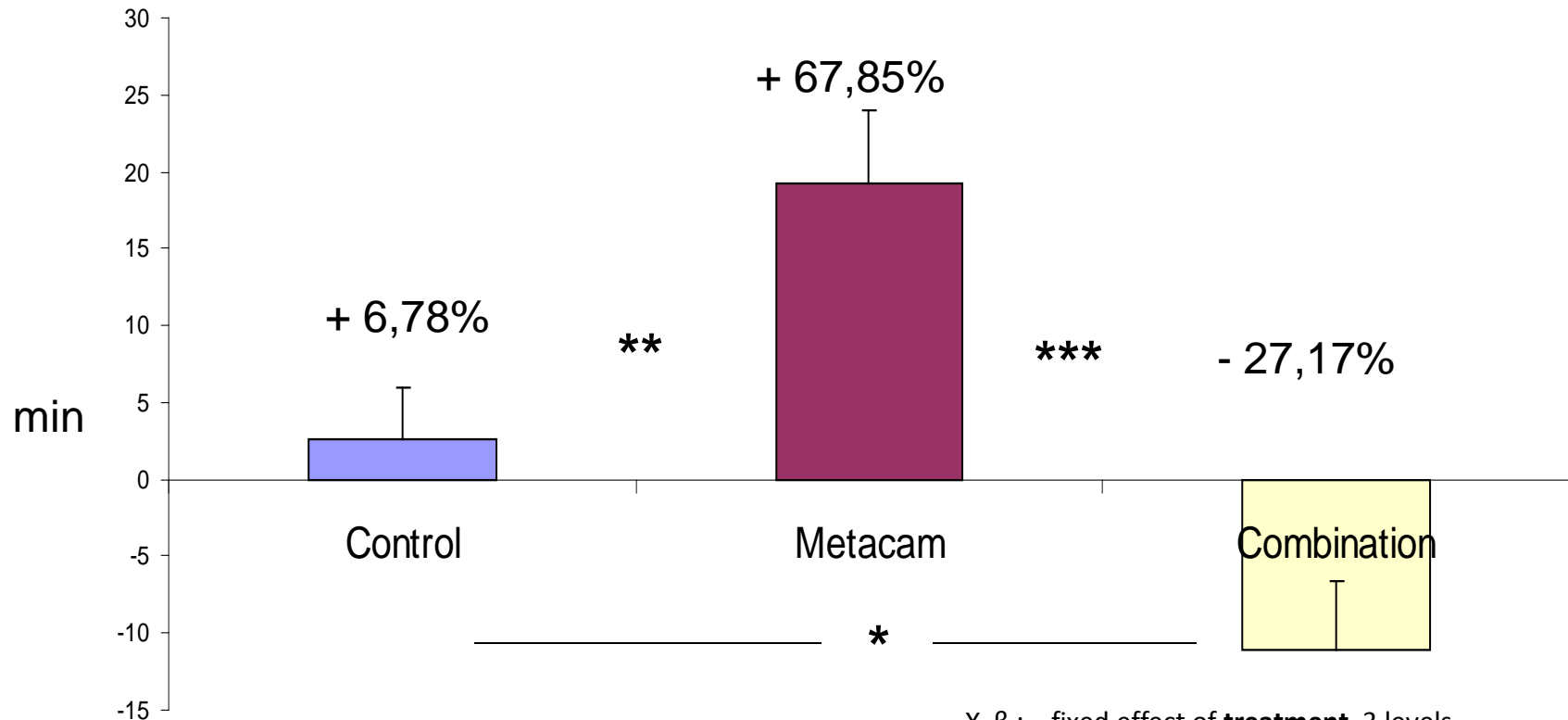
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Results

Suckling duration (lying at sows' teat)

Difference *before and after* castration



Linear mixed model: $y = X \beta + W \gamma + Z b + \varepsilon$

X β : fixed effect of **treatment**, 3 levels
W γ : fixed effect of **time period**, 4 levels
Z b : random effect of **litter/sow**, 29 levels



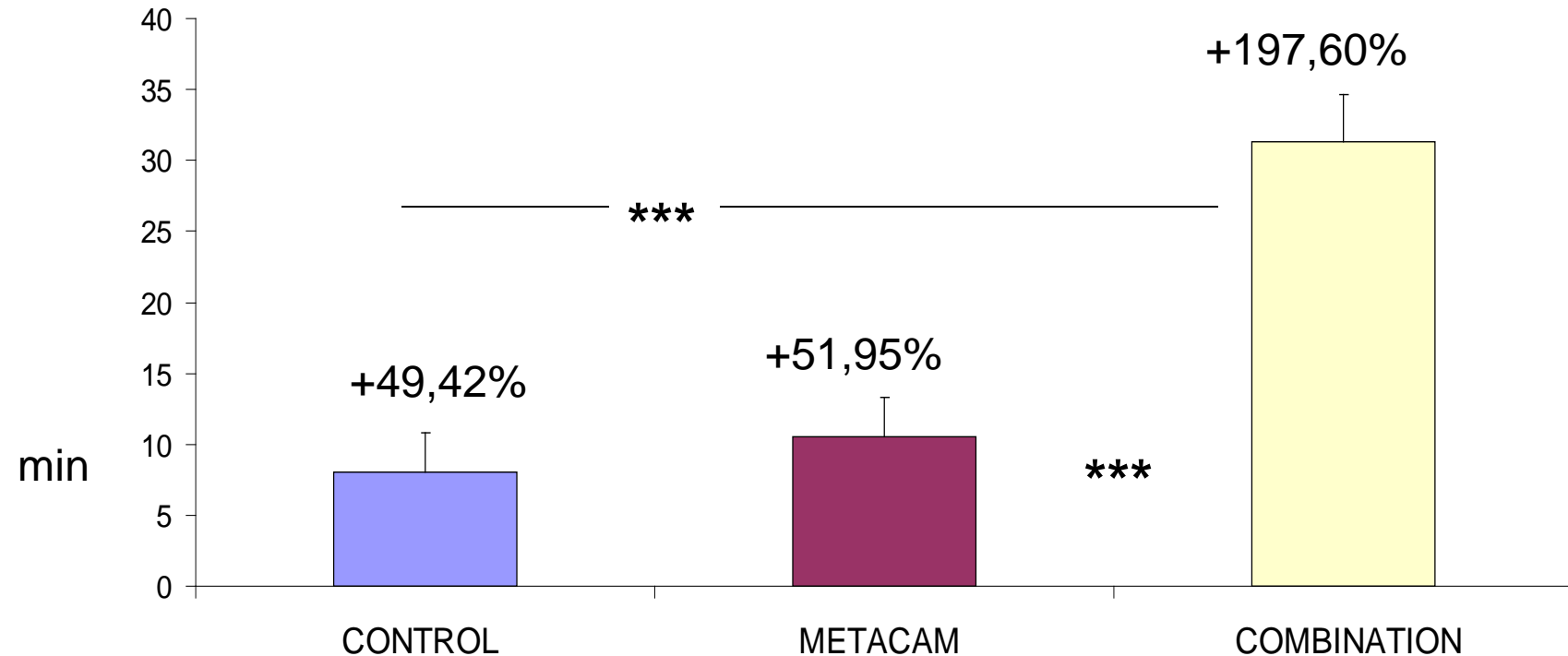
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Results

Physical Activity

Difference before and after castration



Linear mixed model: $y = X \beta + W \gamma + Z b + \epsilon$

X β : fixed effect of **treatment**, 3 levels

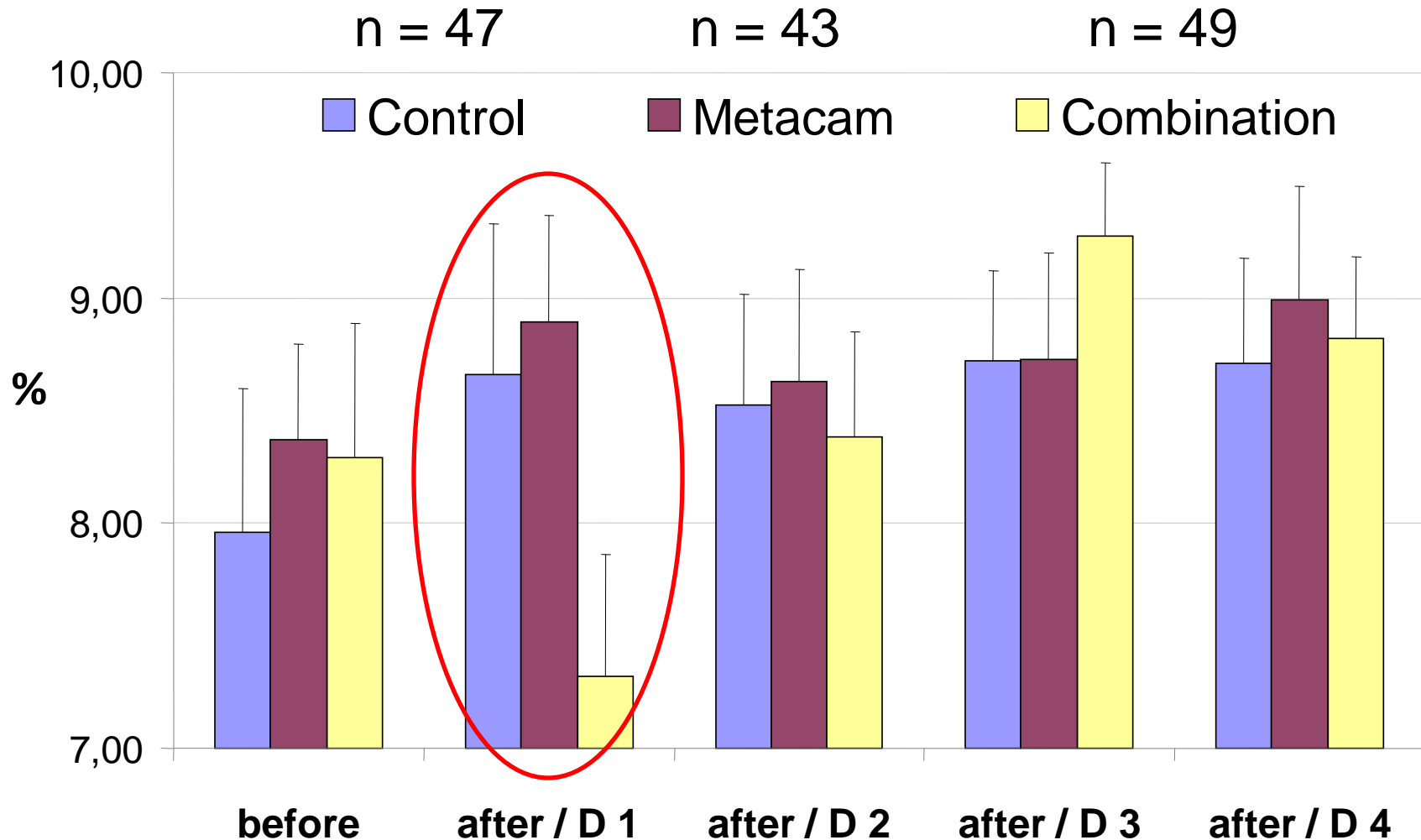
W γ : fixed effect of **time period**, 4 levels

Z b : random effect of **litter/sow**, 29 levels



Results

Daily weight gain



ANOVA; $p = 0,108$

Summary and Discussion

Suckling Behaviour:

METACAM:

- none of the METACAM piglets changed to a lower rank
- increase of suckling duration



reduced post castration pain and stress?

COMBINATION:

- sign. higher number of teats used
- decrease of suckling duration
- highest increase of physical activity



impaired coordination (still 6 h after castration)

reduced milk intake?

decrease in suckling order stability?

increased post surgery stress?



Conclusion



Post-castration behaviour must be taken into account when evaluating alternative castration methods, and those with short acting anaesthesia should be preferred.



Thank you!



“A stable teat order results in a quieter, more contented and productive piglet group“

Ewbank, 1976

- Serumwerke Bernburg AG (Ursotamin®)
- Boehringer Ingelheim GmbH (Metacam®)



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