The influence of floor type on osteochondrosis in gilts

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What is OC?


Blood vessel disruption → Cartilage necrosis (Biomechanically weak site) → Joint surface irregularities
What is OC?

Elbow joint

Knee joint

Hock joint
Problem

Animal welfare
Culling
Breeding

Ytrehus et al., Vet Path. 44, 2007;
Lundeheim, Acta Agric. Scand. 37, 1987
Challenge

- OC development around 10 weeks of age

- Reducing prevalence of OC
  - Environmental measures?

- Time dependency of environmental measures?
  - At least for dietary restriction → YES
  - Housing system / floor type?

Experiment

- Influence of floor type on OC prevalence

- Contradicting results in literature\(^1\)
  - Perhaps due to timing of treatment

- Experimental set-up
  - Topigs 20 (Dutch Large White x Dutch Landrace) breeding gilts
  - Conventional partially slatted floor
  - Wood shavings as bedding (25-50cm)

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Scott et al., Livest. Sci. 103, 2006;
vан Grevenhof et al., Livest. Sci. 135, 2011
# Experimental set-up

<table>
<thead>
<tr>
<th>Wood shavings</th>
<th>Wood shavings</th>
<th><strong>After weaning at 4 weeks of age</strong></th>
<th>Wood shavings</th>
<th>Conventional</th>
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<tbody>
<tr>
<td></td>
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<td><em>(n = 212)</em></td>
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<td>Wood shavings</td>
<td>Conventional</td>
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</table>

**Switch in treatments at 10 weeks of age**

| Conventional | Conventional | Conventional | Wood shavings |
Measurements

- Macroscopic evaluation of joints after slaughter at 24 weeks of age
  - Hock, knee, elbow
  - Scale 0 (no OC) to 4 (severe OC)

- Binary and ordinal logistic regression
OC prevalence

**elbow**

**hock**

**knee**

**animal**

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Conclusions

- No clear time dependent effect of floor type

- Deep litter type system using wood shavings increases prevalence of severe OC
  - Similar as found previously in pigs\(^1\)
  - Too much activity may surpass load bearing capacity of joints\(^2\)
  - Might lead to long term welfare effects

1. van Grevenhof et al., Livest. Sci. 135, 2011
2. de Koning et al., J. Anim. Sci 92, 2014
   Lepeule et al., Vet. J. 197, 2013
   Praud et al., Vet. J. 197, 2013
Thank you!

Deep litter system (wood shavings) increases severe OC lesions in growing gilts which may lead to long term welfare effects.

Questions?