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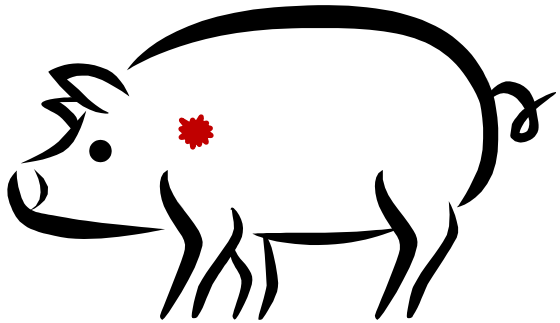
Shoulder sores are inherited



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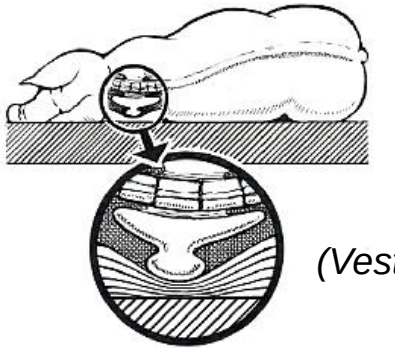
Abstract:

Shoulder sores in sows is a serious welfare issue in many herds. Main focus is often on environment and management factors, but our aim was to analyze the genetic background of shoulder sores. Data on 3 280 Norwegian Landrace sows were used. The sows were scored after weaning (~5 wks), from 1 (no sore) to 5 (severe open wounds). In total, 74 % of the sows had no shoulder sores (score 1) and 15%; 8% and 3% had scores 2; 3 and 4+5 respectively. Variance components were estimated using bivariate analyses and an animal model. The heritability for shoulder sores was estimated at 0.13 ± 0.03. Genetic correlations with mean piglet weight and sow body condition were estimated to 0.42 ± 0.18 and -0.56 ± 0.14 respectively. This indicates that there are unfavourable correlations between shoulder sores and piglet production and the problem of shoulder sores should be a matter of concern in breeding programs.

What is a shoulder sore?

When tissue is under pressure between a surface and the shoulder blade for a longer time …



(Vestergaard et al., 2005)

Photo: Helena Chalkias

This leads to tissue damage!

Background

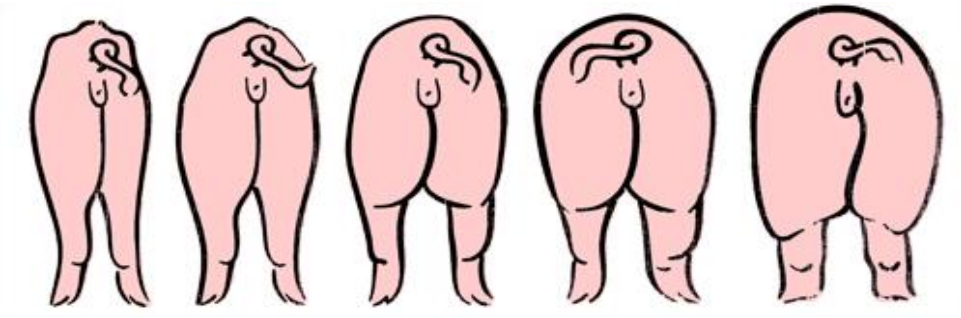
Animal welfare	pain infections
Economy	decreased production earlier cullings reduced carcass value

Environmental risk factors

- Housing
- Flooring
- Pen size and design
- Humidity
- Temperature
- Feeding routines

Sow risk factors

Body condition and weight loss



Parity

Litter size

Shoulder sores in previous lactations

Health status – infections, leg problems

Aim

Can we reduce shoulder sores in lactating sows by selection?

Are there genetic factors behind the risk of developing shoulder sores?

Data set

- 3 280 Norwegian Landrace sows
- From Jan 2008 to June 2009
- 35 herds
- 60% 1st parity sows
- Shoulder sores scored at weaning

Shoulder sore scoring

1 No sores

2 Sores in the top layer of the skin

3 Sores in the top layer of the skin with crust formation and scar tissues

4 Sores in the deeper layer of the skin and with crust formation and severe scar tissue

5 Deep sores into the muscles, sometimes with visible shoulder bone

Descriptive statistics

Frequency distribution

score 1 (no sores) 74%

score 2 15% score 3 8% score 4-5 3%

Photo: www.animalia.no

Descriptive statistics

	Mean	std dev
Shoulder sore score	1.4	0.8
Number piglets born alive	12.3	3.3
Number piglets weaned	10.3	2.3
Lactation length	35.6 d	5.9
Litter weight (3 wks)	69.8 kg	20.1
Mean piglet weight (3 wks)	7.1 kg	1.3

Genetic analysis

AI-REML linear animal model

$y = X\beta + Za + e$

Fixed effects: herd, parity

Random effects: year*season, animal

Covariates for mean piglet weight:

number piglets born alive, age at weighing

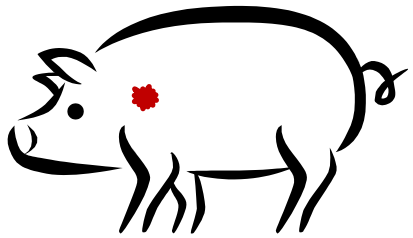
Covariates for shoulder sores and sow body condition:

number piglets weaned, age at weaning

Genetic analysis

Heritability of shoulder sores

0.13 ± 0.03



Genetic analysis

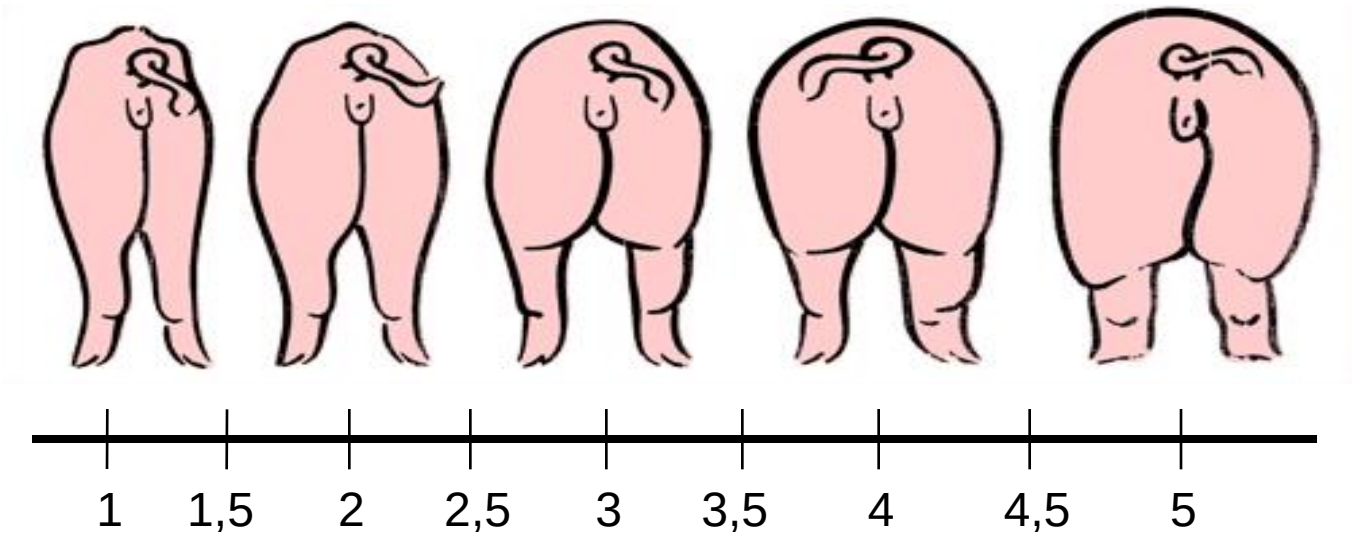
Genetic correlation to mean piglet weight at 3 wks

0.42 ± 0.18

Genetic analysis

Genetic correlation to body condition at weaning

-0.56 ± 0.14



Conclusion

Unfavourable correlations between shoulder sores and piglet production

but

selection can decrease shoulder sores in lactating sows!

Thank you!

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