A pain scoring protocol for dairy cattle

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Background

- No existing pain evaluation tool
- Cattle are not evaluated as individual animals
- Cattle are stoic animals

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Aim, study I

To create a pain evaluation tool, using readily recognizable behavioural parameters

Aim, study II

To validate the pain evaluation tool developed in study I using different observers and animals

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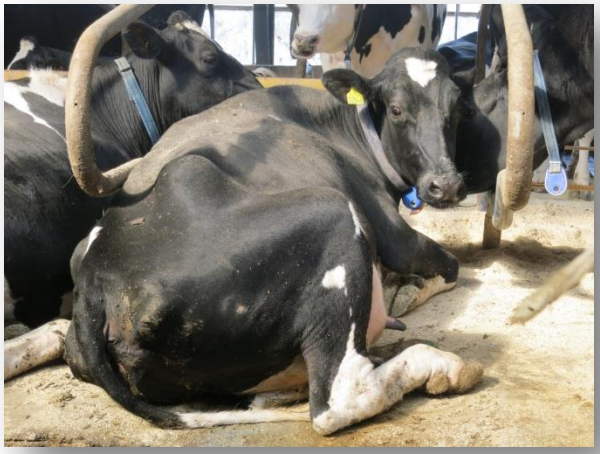
Method – inclusion criterion

Herds

- Loose housed dairy cattle
- >150 cows in the milking division
- Danish Holstein cattle



Cows

- >2 weeks after calving
- Without diagnosed disease

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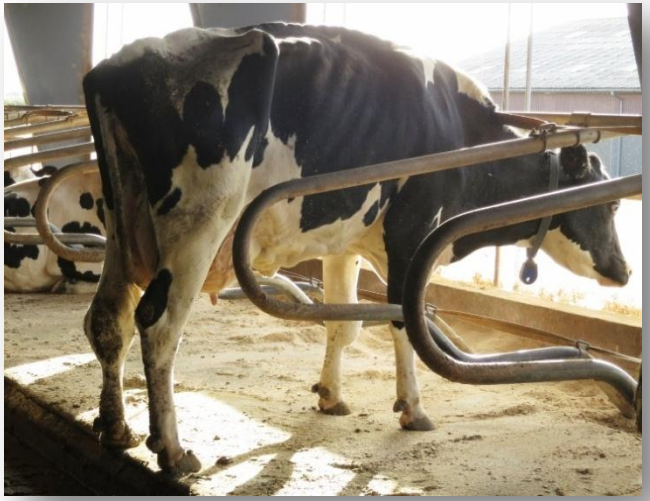
Method – study I – selecting the individuals

'Deviating' group – believed to be in pain

- General appearance – pain
  - Posture, quality of respiration, fur coat

'Normal' group – believed to be healthy

- General appearance – contentment/comfort
  - Active, relaxed, curious etc.



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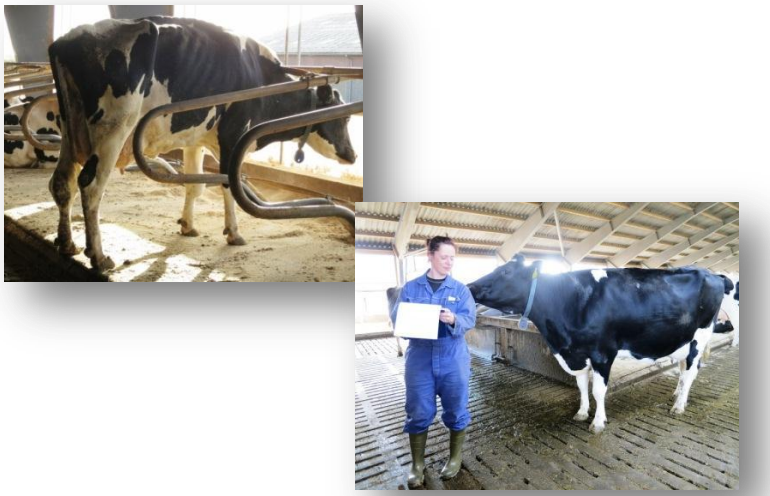
Method – study I

Day 1

1. Selecting cows
2. Behaviour score
   - 15 parameters, 3-5 levels



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Method – study I

Day 1

1. Selecting cows
2. Behaviour score
   - 15 parameters, 3-5 levels

Day 2

1. Clinical examination of the cows
2. Randomized treatment
   1. Analgesia (Ketoprofen i/v)
   2. Placebo (Saline i/v)
3. Behaviour score (2-4 hours post treatment)

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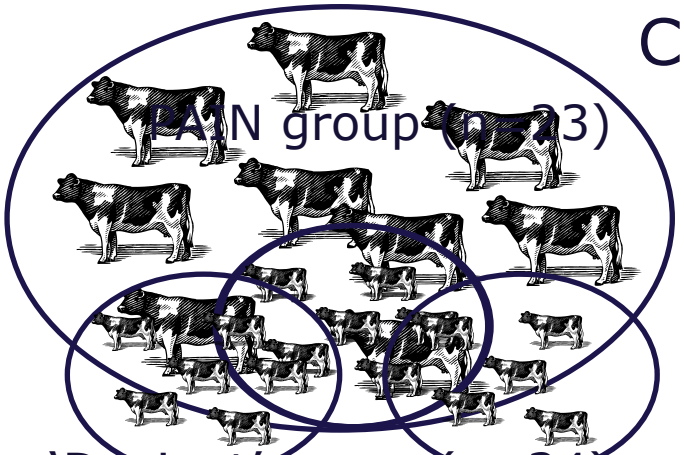
Results – study I

- 43 cows included (24 'deviant' and 19 'normal')
- New classification based on clinical findings

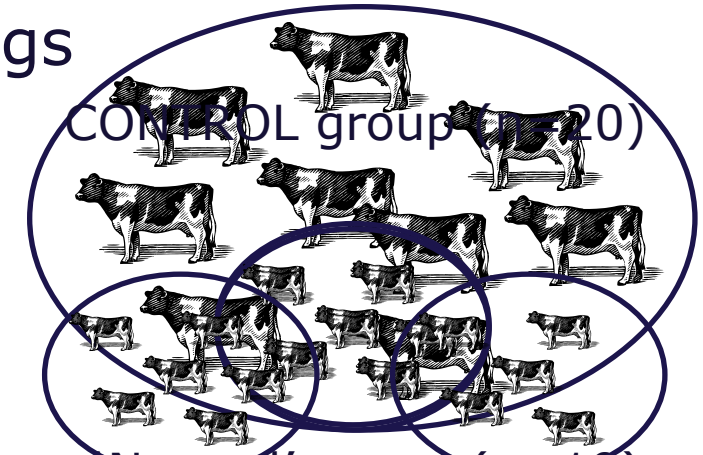
Clinical findings



'Deviant' group (n=24)

Analgesic treatment (n=12)

Placebo treatment (n=11)



'Normal' group (n=19)

Analgesic treatment (n=11)

Placebo treatment (n=9)

3 cows were re-grouped

Analgesic treatment

Placebo treatment

Analgesic treatment

Placebo treatment

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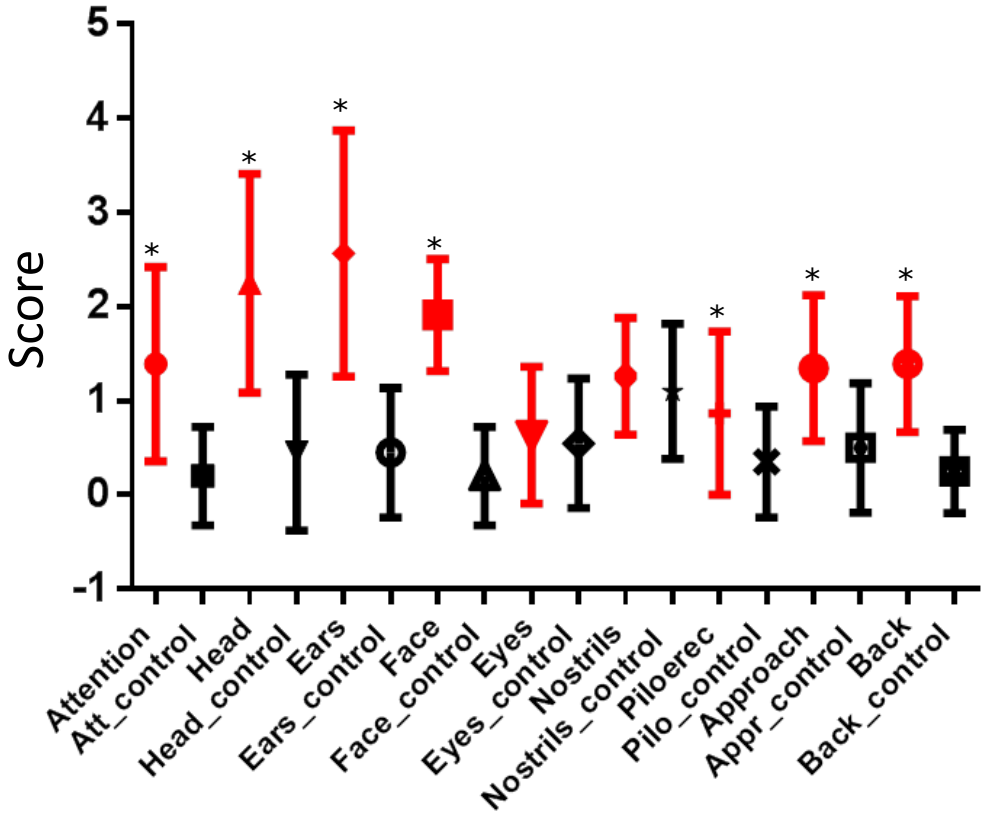
Results – study I

- Nine behaviours were compared between the PAIN group and the CONTROL group
  - Mann-Whitney test



Seven parameters were significantly higher for the PAIN group

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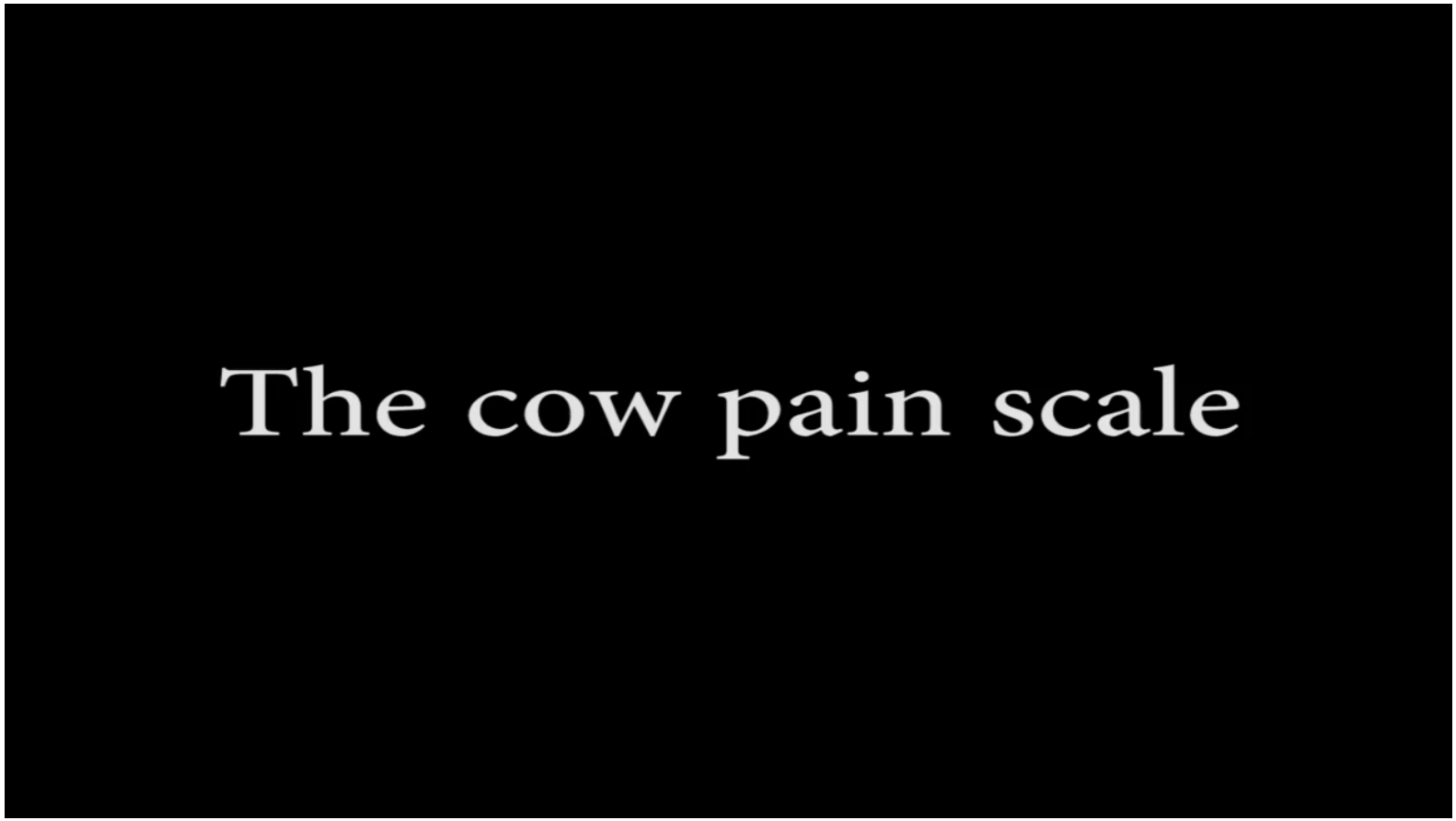
The cow pain scale

SCORE	0	1	2
Attention	**Active and Attentive**	**Quiet/depressed**	
Head position	**High/level of withers**	**Level of withers**	**Low**
Ear position	**Attentive ears**	**Ears back/asymmetric ear movements**	**Lambs' ears**
Facial expression	**Attentive/neutral look**	**Tense expression/ strained appearance**	
Response to approach	**Look at observer**	**Look at observer**	**May/may not look at observer**
Back position	**Straight back**	**Slightly arched back**	**Arched back**


The cow pain scale

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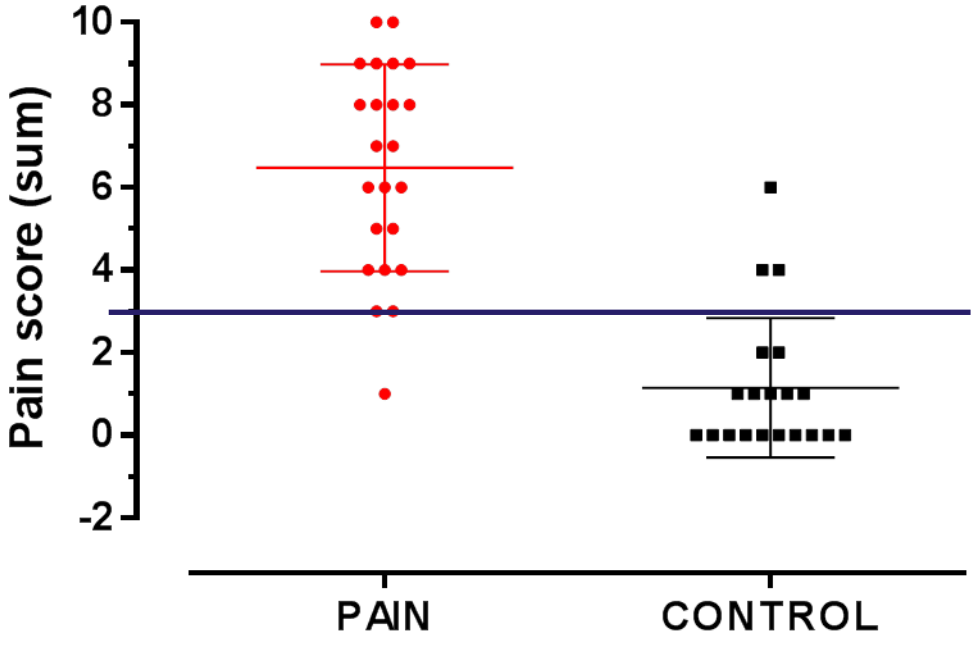
Results – study I

- The cow pain scale
  - Comparing the PAIN group with the CONTROL group



p<0.0001

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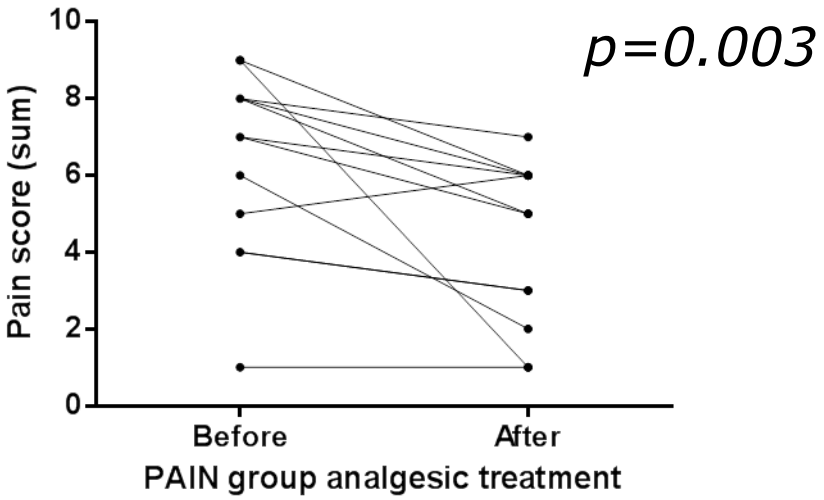
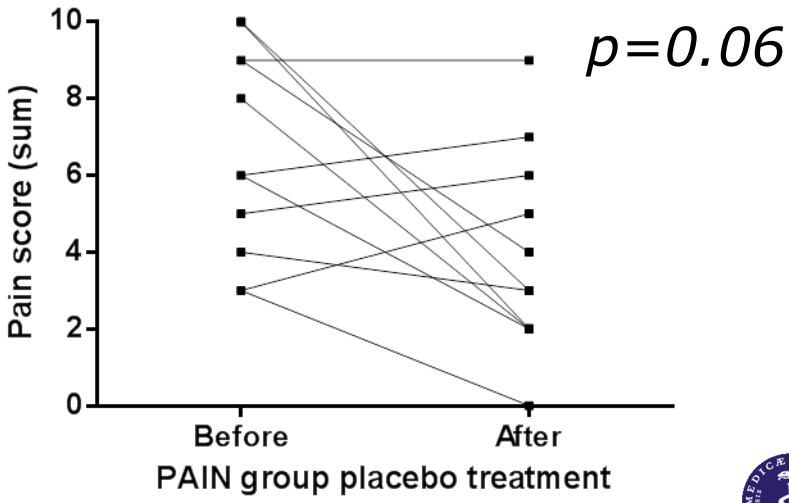
Results – study I

- The cow pain scale
  - Comparing the groups before and after treatment
    - Wilcoxon matched-pairs signed rank test





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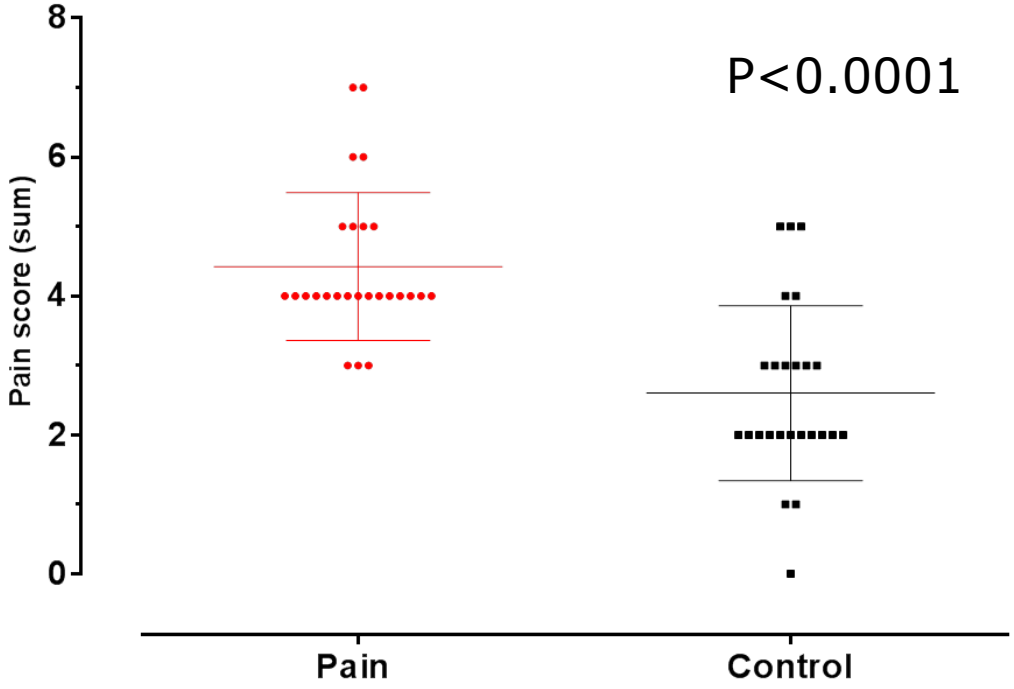
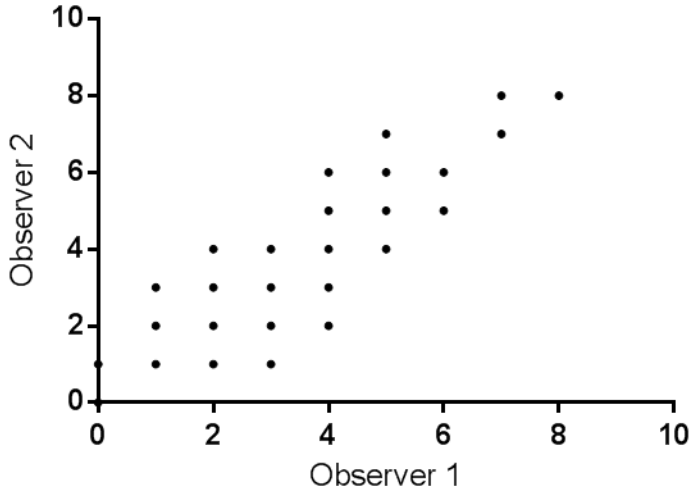
Study II

- The cow pain scale was tested on 84 randomly sampled cows





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Conclusion

It was possible to identify six readily recognizable behavioural parameters, which changes in cows with mild-moderate pain and is affected by analgesic treatment

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