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Identifying pain behaviours in dairy cattle

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BACKGROUND
Identifying pain in dairy cattle is a challenging task due to their stoic behaviour. This may impose a welfare problem as research suggests that analgesia is rarely included in the treatment of dairy cattle

OBJECTIVE
The aim of this study was to identify behavioural characteristics indicative of pain in dairy cattle under production conditions.

CONCLUSION
The present study has identified six behavioural characteristics that significantly differ between cows with clinical signs indicating a painful condition, compared to healthy controls, with no clinical findings indicating pain. This study also suggests, that it is possible to do a rough screening of a herd, to identify animals that are likely to suffer from a painful condition, based on visual evaluation of general appearance.

METHODS

Inclusion criteria
- Herds with more than 150 milking cows
- Cows from the milking division
- Cows more than two weeks after calving
- Healthy cows, not in treatment

Day 1
- Selection of cows, by two veterinarians, based on general appearance
- Allocation to ‘pain group day 1’ or ‘control group day 1’
- Behavioural score by two veterinarians

Day 2
- Full clinical examination and blood sampling

RESULTS

Comparison of the two methods of identifying animals in pain:
1. Assessment of general appearance (day 1)
2. Conclusions of the clinical examination as golden standard (day 2)

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Pain group, clinical ex.</th>
<th>Control group, clinical ex.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>0.002</td>
<td>0.76</td>
</tr>
<tr>
<td>Head position</td>
<td>0.004</td>
<td>0.45</td>
</tr>
<tr>
<td>Ear position</td>
<td>0.0001</td>
<td>0.66</td>
</tr>
<tr>
<td>Facial expression</td>
<td>0.0001</td>
<td>0.68</td>
</tr>
<tr>
<td>Eyes, visible white</td>
<td>0.7</td>
<td>0.58</td>
</tr>
<tr>
<td>Nostril cleanliness</td>
<td>0.7</td>
<td>0.82</td>
</tr>
<tr>
<td>Piloerection</td>
<td>0.9</td>
<td>0.66</td>
</tr>
<tr>
<td>Response to approach</td>
<td>0.002</td>
<td>0.56</td>
</tr>
<tr>
<td>Back position</td>
<td>0.0002</td>
<td>0.52</td>
</tr>
</tbody>
</table>

Diagnostic sensitivity: 0.96
Diagnostic specificity: 0.90

CONCLUSION
The present study has identified six behavioural characteristics that significantly differ between cows with clinical signs indicating a painful condition, compared to healthy controls, with no clinical findings indicating pain. This study also suggests, that it is possible to do a rough screening of a herd, to identify animals that are likely to suffer from a painful condition, based on visual evaluation of general appearance.