**Table S1: Reference values for significant predictors.**

|  |  |
| --- | --- |
| **Variable** | **Reference value** |
| *Foot pad dermatitis* | 0 (no damage) |
| *Hock burn* | 0 (no damage) |
| *Lameness* | 0 (non-lame) |
| *Leg* | Left |
| *Mass* | Mean |
| *Pathology and pathology sub-categories* | 0 (absent) |
| *Sex* | Male |
| *Skin temperature* | Mean |
| *Strain* | 1 |
| *Test* | Mean (3) |

**Table S2: Factors affecting thermal threshold in broilers.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Coefficient** | **SE (Coeff)** | **z-value** | **χ2** | **d.f.** | **p** |
| Constant | 42.379 | 0.290 | 146.135 |  |  | <0.001 |
| Lameness | -1.113 | 0.335 | -3.322 |  |  | <0.001 |
| Skin |  |  |  | 50.722 | 2 | <0.001 |
| Test |  |  |  | 21.350 | 2 | <0.001 |

**Table S3: Factors affecting skin temperature in broilers.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Coefficient** | **SE (Coeff)** | **z-value** | **χ2** | **d.f.** | **p** |
| Constant | 34.289 | 0.553 | 62.005 |  |  | <0.001 |
| *Foot pad dermatitis* | 0.501 | 0.133 | 3.767 |  |  | < 0.001 |
| *Pathology* | -0.741 | 0.248 | -2.988 |  |  | 0.003 |
| *Mass* | -0.792 | 0.301 | -2.631 |  |  | 0.008 |
| *Leg* | 0.436 | 0.182 | 2.396 |  |  | 0.02 |
| *Strain* | 1.308 | 0.573 | 2.283 |  |  | 0.02 |
| *Test* |  |  |  | 181.389 | 2 | <0.001 |

**Table S4: Factors affecting thermal nociceptive threshold in broilers administered saline or meloxicam.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Coefficient** | **SE (Coeff)** | **z-value** | **χ2** | **d.f.** | **p** |
| Constant | 43.616 | 0.529 | 82.450 |  |  | <0.001 |
| *Skin temperature1* | 0.469 | 0.095 | 4.937 |  |  | <0.001 |
| *Sex2* | -1.338 | 0.513 | -2.608 |  |  | 0.009 |
| *Test number3* | -0.167 | 0.069 | -2.420 |  |  | 0.02 |
| Interaction: *Lameness* x *treatment* |  |  |  | 21.350 | 3 | 0.005 |

1Threshold increased by 0.47˚C (CI 0.28-0.66˚C) for each 1˚C increase in skin temperature.
2Male birds had a mean threshold 1.3˚C (CI 0.30-2.30˚C) higher than females.
3Threshold decreased by 0.17˚C (CI 0.03-0.30˚C) with test number across a session.

**Table S5: Factors affecting skin temperature in broilers administered saline or meloxicam.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Coefficient** | **SE (Coeff)** | **z-value** | **χ2** | **d.f.** | **p** |
| Constant | 36.606 | 0.315 | 116.210 |  |  | <0.001 |
| *Test number1* |  |  |  | 63.593 | 2 | <0.001 |
| Interaction: *Lameness* x *treatment* |  |  |  | 36.825 | 3 | <0.001 |

1Fitted as a quadratic relationship: skin temperature initially rose slightly over sequential tests then levelled off across the last two tests.

**Table S6: Factors affecting thermal nociceptive threshold in broilers administered saline or butorphanol.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Coefficient** | **SE (Coeff)** | **z-value** | **χ2** | **d.f.** | **p** |
| Constant | 131.234 | 35.211 | 3.727 |  |  | <0.001 |
| *Lameness* | 1.135 | 0.349 | 3.252 |  |  | <0.001 |
| *Skin temperature* |  |  |  | 21.001 | 2 | <0.001 |
| *Test number* |  |  |  | 61.687 | 2 | <0.001 |