**Table S1:** Descriptive statistics demonstrating data distribution for each breed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | CNV | SGH | SGN |
| Age in Days1 | Median | 27 | 41 | 40 |
| Minimum | 26 | 26 | 26 |
| Maximum | 30 | 49 | 48 |
| Mean ± SD | 27.62 ± 1.60 | 38.49 ± 8.95 | 37.42 ± 9.22 |
| Repeated Weight (kg)2 | Median | 1.437 | 1.682 | 1.608 |
| Minimum | 1.107 | 0.622 | 0.635 |
| Maximum | 1.911 | 2.739 | 2.751 |
| Mean ± SD | 1.461 ± 0.227 | 1.563 ± 0.586 | 1.457 ± 0.587 |
| Final Weight (kg)3 | Median | 2.319 | 2.076 | 2.412 |
| Minimum | 1.836 | 1.750 | 1.891 |
| Maximum | 2.784 | 2.739 | 2.880 |
| Mean ± SD | 2.270 ± 0.298 | 2.132 ± 0.259 | 2.389 ± 0.293 |
| ActivityA (%)4 | Median | 16.85 | 21.45 | 25.38 |
| Minimum | 11.59 | 11.70 | 16.88 |
| Maximum | 23.71 | 39.17 | 39.72 |
| Mean ± SD | 17.61 ± 3.32 | 21.85 ± 6.12 | 26.57 ± 5.83 |
| Gait Score | 0 | 0 | 0 | 3 |
| 1 | 1 | 17 | 10 |
| 2 | 10 | 8 | 2 |
| 3 | 4 | 0 | 0 |
| 1Age at time of accelerometer attachment2Weight recorded at each time of accelerometer attachment3 Weight recorded at welfare assessment4 ActivityA refers to the overall percent of time spent active measured using accelerometers |

**Table S2:** Descriptive statistics of last week mean activityA (%) and last week mean weight (kg) for each gait score and breed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Gait Score** | **Activity**A **(%)** | **Weight (kg)** | **Sample Size1** |
| **Median** | **Min.** | **Max.** | **Mean ± SD** | **Mean ± SD** |
| SGH | **0** | - | - | - | -  | -  | 0 |
| **1** | 19.59 | 15.05 | 26.43 | 20.05 ± 3.02  | 1.83 ± 0.19 | 17 |
| **2** | 16.86 | 13.90 | 23.74 | 17.70 ± 3.71  | 2.16 ± 0.15  | 8 |
| **3** | - | - | - | -  | -  | 0 |
| SGN | **0** | 23.72 | 17.88 | 28.73 | 23.44 ± 5.43 | 1.57 ± 0.12  | 3 |
| **1** | 24.19 | 17.99 | 28.44 | 23.65 ± 3.39  | 1.92 ± 0.29  | 10 |
| **2** | 24.05 | 24.00 | 24.09 | 24.05 ± 0.06  | 2.07 ± 0.26  | 2 |
| **3** | - | - | - |  -  | - | 0 |
| CNV | **0** | - | - | - | -  | - | 0 |
| **1** | 18.89 | 18.89 | 18.89 | 18.89  | 1.31  | 1 |
| **2** | 17.19 | 11.59 | 20.44 | 16.89 ± 2.93  | 1.41 ± 0.12  | 10 |
| **3** | 17.57 | 16.44 | 20.39 | 17.99 ± 1.69  | 1.59 ± 0.13  | 4 |
| All Breeds | **0** | 23.72 | 17.88 | 28.73 | 23.44 ± 5.43 | 1.57 ± 0.12 | 3 |
| **1** | 20.60 | 15.05 | 28.44 | 21.29 ± 3.53 | 1.84 ± 0.25  | 28 |
| **2** | 17.39 | 11.59 | 24.09 | 17.93 ± 3.70 | 1.77 ± 0.40  | 20 |
| **3** | 17.57 | 16.44 | 20.39 | 17.99 ± 1.69 | 1.59 ± 0.13  | 4 |
| 1As a result of different breed hatching rates as part of the wider RSPCA BBWAP study [11] there were more pens of SGH birds compared to SGN and CNV birds. To keep sample sizes within pens consistent across breeds, accelerometers were attached to 15 SGN, 15 CNV and 25 SGH birds. |

**Table S3:** Generalized linear model results demonstrating the relationship between gait score and, the mean activityA (%) and mean weight (g). The means were calculated from data collected 8 days prior to bird gait being scored.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **OR** | **95% CI** | **p** |
| **Lower** | **Upper** |
| SGH | **Mean ActivityA (%)** | 0.814 | 0.53 | 1.25 | 0.348 |
| **Mean Weight (g)** | 1.009 | 1.00 | 1.02 | 0.016 |
| SGN | **Mean ActivityA (%)** | 1.049 | 0.76 | 1.44 | 0.770 |
| **Mean Weight (g)** | 1.005 | 0.99 | 1.01 | 0.051 |
| CNV | **Mean ActivityA (%)** | 1.110 | 0.66 | 1.85 | 0.689 |
| **Mean Weight (g)** | 1.012 | 1.00 | 1.02 | 0.026 |
| OR: Odds ratio >1 indicated a positive effect and odds ratio <1 indicated a negative effect of weight on behaviour; CI: Confidence Interval; p: p value |