

Chapter 6

Comparison of police horses' behavioural reactions and suitability scores

6.1 Aim of chapter

The fourth objective of this study was to assess the validity of the reliable standardised behaviour tests in measuring a police horse's suitability for its roles. This was achieved for looking for correlations between the standardised behaviour test scores and suitability for use scores.

The literature review in Chapter 2 revealed that earlier studies have used standardised behaviour tests to explore whether they can predict the suitability of show-jumpers (Visser et al., 2003), and therapeutic riding horses (Anderson et al., 1999), with varying results. No studies so far have explored whether such tests can predict the suitability of police horses and have been limited in the type and number of tests used. This study used a wider range of more feasible tests that may be useful in the industry. These tests, if valid, may be beneficial to mounted police units and assist them with their selection of suitable horses.

6.2 Subjects and location

The data were collected between January and March 2008 on 24 police horses. These horses were housed at Merseyside Police Unit (N=15) and at Manchester Mounted Police Unit (N=9). The sample consisted of 12 (92%) geldings and three (8%) mares. The median (IQR) age of the horses was 12.5

years (9.5-15.5). The level of experience was also recorded in terms of how long the horses had been conducting the job, which resulted in a median (IQR) of 6.5 years (3.2-10). The breeds spanned a variety of large breed horses including Irish Draughts, Thoroughbreds, Clydesdales, Shires and crosses of these.

The two police units had differing setups. Merseyside had an open yard with stables located around the edge, whereas at Manchester horses were stabled in an American barn system. During this time of the year all horses were stabled when not working. Both locations offered a large indoor school to conduct the tests in.

6.3 Test procedure

The standardised behaviour tests were conducted applying the same procedures as used in the reliability analysis of riding school horses (see Section 4.3), but only using tests that were shown to elicit reliable responses or could be explained by habituation (see section 4.5.2). The indoor arena at each site was used as the testing area.

Unfortunately, due to insurance issues, the tests could not be conducted by the researcher. However, at each establishment a member of staff was keen to assist with this research and, with prior briefing and supervision by the researcher, was able to conduct the tests. All tests were conducted at Merseyside by one of their officers and at Manchester by the yard manager.

Secondary analysis was used to assess whether there was a difference in horses' reaction depending on the handler. The horses' responses to the tests were videoed from a concealed position in the viewing gallery. Data were collected over two full days at Merseyside and two afternoons at Manchester. It was not possible to use the umbrella test at Manchester because of safety considerations expressed by staff (concern about a startled/fleeing horse injuring itself on the test equipment). A reduced sample size of N=15 was therefore used for this test.

6.4 Analysis methods

The reliability of the standardised behavioural tests was established in Chapter 4. The standardised tests were compared with the scores of indices of suitability for police horse roles. Spearman's rank order correlations (r_s) were used. This test was chosen as the majority of the data were ordinal. The r value was interpreted using an informal guideline provided by Martin & Bateson (1993), (see Table 6.4.1).

Table 6.4.1. Table to show informal interpretations of correlation coefficients taken from Martin & Bateson (1993).

| Value of r | Informal interpretation |
|-------------------|---|
| <0.2 | Slight; almost negligible relationship |
| 0.2-0.4 | Low correlation; definite but small relationship |
| 0.4-0.7 | Moderate correlation; substantial relationship |
| 0.7-0.9 | High correlation; marked relationship |
| 0.9-1.0 | Very high correlation; very dependable relationship |

Secondary analysis

As different handlers conducted the tests in each unit, it was decided to assess whether there was a difference in the horses' reactions between the two mounted police units. This was achieved using Mann Whitney U tests, which tested for differences between the mean score for each standardised behaviour test between the two units. This test was chosen as the majority of the data were ordinal and not normally distributed.

A Bonferroni correction (Simple Interactive Statistical Analysis, n.d.) was used to adjust the P value to account for the number of tests used to test this hypothesis, which was a total of nine comparisons. The alpha value was reduced to $P=0.005$.

6.5 Results

Eight moderate correlations were found ($r_s > 0.4$) were found between the responses of the standardised behaviour tests and a horse's score on suitability for use as a police horse (see Table 6.5.1).

Moderate correlations were found between a horse's postural expression and flight reaction following an unexpected noise and its suitability for use at community events and school visits (strangers' petting). Police horses' responses (to the shaker) could be categorised as either 'no flee' (freeze) or 'flee at trot or canter' (no horse fled at walk). Horses which did not flee and

were less startled by the shaker were found to be more suited at community events.

A moderate correlation was also found between a horse's tendency to touch a sudden moving object and its suitability for use at training officers, with horses which touched the object being more suited at training officers.

Moderate correlations were found between a horse's flight reaction to a sudden moving object and its suitability for use in local patrols, public order and officer training. More flighty horses being better suited to these jobs. Only two of the 15 horses fled away from this stimulus.

A moderate correlation was found between a horses' flight reaction and its suitability for training officers, horses which did flee were more suited in the training of officers.

A moderate correlation was found between a horses' tendency to touch a novel object and its suitability for community events, with horses which didn't touch the object being more suited.

A moderate correlation was also shown between a horse's latency to touch a stranger and its suitability at community events/school visits, with a decrease in latency showing a higher suitability score

Table 6.5.1. Summary of Spearman's rank order (r_s) correlations between police horses' responses to the standardised behavioural tests and the scores of indices of police horse roles. Results in bold indicate a moderate or better correlation.

| Response to standardised behaviour test | Suitability score on police horse roles | | | | | | |
|---|--|----------------------|----------------------|--|---|--|----------------------|
| | Local patrol | Box patrol | Night patrol | Public order | Community intervention /school visits | Training officers | Water |
| Horse's response to approach by a strange human | rs= -.141 P= 0.521 n= 23 | -.053 0.810 23 | -.134 0.551 22 | -.259 0.245 22 | .298 0.157 24 | -.176 0.531 15 | .054 0.807 23 |
| Horse's postural response to an unexpected noise | rs= .200 P= 0.371 n= 22 | .017 0.941 22 | -.158 0.483 22 | -.178 0.427 22 | -.563 0.005 23 | .309 0.263 15 | -.077 0.732 22 |
| Horse's flight reaction to an unexpected noise | -.075 0.741 22 | .105 0.643 22 | -.008 0.972 22 | -.030 0.894 22 | -.497 0.016 23 | .446 0.096 15 | .052 0.817 22 |
| Horse's postural expression to a fast moving object | -.167 0.551 15 | -.009 0.974 15 | -.225 0.429 15 | -.222 0.426 15 | -.063 0.822 15 | .109 0.669 15 | -.301 0.275 15 |
| Horse's flight reaction to a sudden moving object | .593 0.020 15 | .346 0.207 15 | .299 0.280 15 | .423 0.117 15 | .234 0.402 15 | .427 0.112 15 | .222 0.427 15 |
| Horse's tendency to touch a sudden moving object | .248 0.373 15 | .152 589 15 | .345 0.207 15 | .314 0.255 15 | -.559 0.030 15 | .616 0.015 15 | .249 0.371 15 |

| Response to standardised behaviour test | Suitability score on police horse roles | | | | | | |
|---|---|----------------------|----------------------|----------------------|---|----------------------|----------------------|
| | Local patrol | Box patrol | Night patrol | Public order | Community intervention /school visits | Training officers | water |
| Horse's response to crossing a unusual surface | -.062 0.777 23 | .020 0.928 23 | 0.021 0.926 22 | .012 0.958 22 | 0.039 0.856 24 | -.096 0.734 15 | 0.176 0.423 23 |
| Horse's response to encouragement over an unusual surface | .203 0.353 23 | .144 0.513 23 | .200 0.373 22 | .343 0.119 22 | 0.10 0.964 24 | 0.374 0.170 15 | 0.124 0.574 23 |
| Horse's duration of time exploring a novel object | -.091 0.923 23 | -.099 0.654 23 | -.268 0.227 22 | -.293 0.186 22 | -.103 0.631 24 | -102 0.718 15 | -.288 0.182 23 |
| Horse's duration of time touching a novel object | .152 0.489 23 | .018 0.936 23 | -.070 0.756 22 | -.117 0.603 22 | -.074 0.732 24 | -004 0.988 15 | -.209 0.339 23 |
| Horse's tendency to touch a novel object | .013 0.952 23 | .066 0.766 23 | -.052 0.817 22 | -.207 0.354 22 | -.056 0.795 24 | -069 0.807 15 | -.343 0.109 23 |
| Horse's latency to touch a stranger | -.158 0.483 22 | -.213 0.342 22 | -.009 0.969 21 | -.010 0.966 21 | -.435 0.038 23 | .216 0.457 14 | .109 0.630 22 |

6.5.1 Effects on location the horses' behavioural responses.

No statistically significant differences were found between the behavioural reactions of the horses depending on the location/handler of the horse after Bonferroni correction. These results are summarised below (see Table 6.5.1.1).

Table 6.5.1.1. Summary of Mann Whitney U test results to explore the differences in horses' behavioural reactions between Merseyside and Manchester mounted police units. The means and standard deviations for each location are also shown.

| standardised behaviour test | Response | Mann-Whitney test | P | N | Mean (SD) Manchester | Mean (SD) Merseyside |
|------------------------------------|-----------------------------------|--------------------------|----------|----------|-----------------------------|-----------------------------|
| Stranger approach | horses' initial response | 63 | 0.482 | 24 | 2.11 (0.781) | 2.06 (0.961) |
| | latency to touch human | 54 | 0.571 | 23 | 4.6 (5.54) | 7.94 (12.35) |
| Novel object | time touching object | 35.5 | 0.048 | 24 | 9.37 (10.21) | 3.28 (4.74) |
| | time exploring object | 45 | 0.179 | 24 | 15.06 (14.19) | 8.56 (10.15) |
| | Latency to touch object | 30.50 | 0.012 | 24 | 1.22 (0.66) | 2.26 (0.96) |
| Unexpected noise test | horses' postural expression | 57.5 | 0.845 | 24 | 2.37 (0.51) | 2.33 (0.48) |
| | horses' flight reaction | 51 | 0.482 | 24 | 1.50 (0.92) | 1.80 (1.01) |
| Unusual surface test | horses' initial reaction | 54.5 | 0.411 | 24 | 2.22 (0.97) | 2 (1.19) |
| | horses' response to encouragement | 60 | 0.554 | 24 | 1.33 (0.33) | 1.26 (0.59) |