Can brushing reduce stress and fearfulness in dairy calves?

Sinead Croarkin

s.croarkin@ncl.ac.uk Stage 3 Animal Science BSc Honours School of Agriculture, Food and Rural Development

Newcastle University

Introduction

- The period after a dairy calf has been weaned from its mother is recognised to be highly stressful (Phillips, 2002)
- Heart rate variability (HRV), measured here using a Polar® heart monitor, has the potential to quantify farm animal stress and welfare (von Borell, et al., 2007)
- Brushing dairy heifers had been shown to reduce their fearfulness of humans (Bertenshaw et al., 2008)
- A recognised method to measure fearfulness in cattle is the approach score (Welfare Quality®, 2009)

Aims

- Determine if brushing has a stress reducing effect on dairy calves
- Can brushing make dairy calves less fearful of humans?
- Will a static brush make calves less stressed?

Objective

If brushing is shown to reduce stress and fearfulness this project could inform dairy farmers on how to improve calf welfare

Materials and Methods

- Four pens of 4 Friesian dairy calves of mixed sex and age range 1-10 w. o.
- In two pens (established) the calves had little previous close human contact, other pens (new) were set up following 2 weeks of close human contact (having Polars applied daily)
- In each pen 2 calves were either brushed or not brushed for 5 to 6 days
- Calf fearfulness was assessed each day using the approach score (Fig. 1)
- Then calves were brushed over their shoulder and neck region for two minutes
- After brushing, Polar® heart monitors were applied to measure resting heart rate variability (HRV)
- When the brushing experiment had finished 2 pens were provided with static brushes to allow calves to brush themselves (Fig. 3)

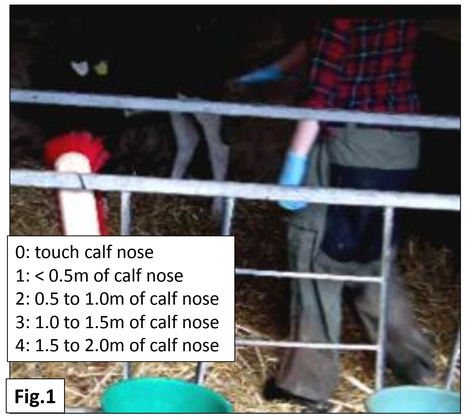

Fig.1

Fig. 2

Fig. 3

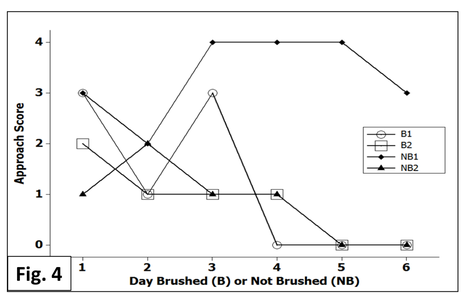

Fig. 4

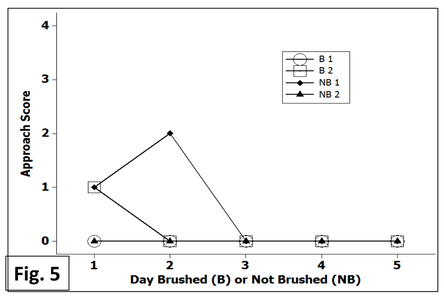

Fig. 5

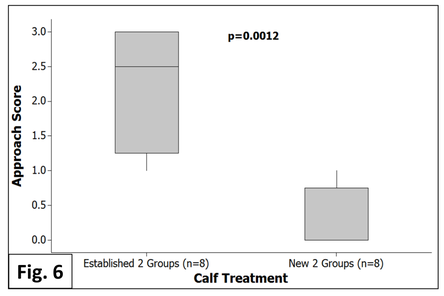

Fig. 6

Results

- No significant difference in HRV or approach score between calves brushed or not brushed
- Calves attempted to brush themselves if the brush was held still (Fig. 2)
- Approach score (AS) generally declined with more days brushed
- Established pens (e.g. Fig. 4) took longer to reduce their AS than the new pens (e.g. Fig. 5)
- Initial AS (day 1) was significantly higher in the 2 established pens (less human contact) than the 2 new pens (more human contact) W= 98.0, p= 0.0012 (Fig. 6)
- No significant difference in HRV between groups from having a static brush in the pen
- The static brush was regularly used by calves (Fig. 3)

Conclusions

- The small sample size and confounding factors of age and previous human contact contributed to HRV and AS data being difficult to interpret
- Calves preferred to be brushed under their chin, around their ears and on the top of their heads (Fig. 2)
- Previous close human contact resulted in dairy calves being significantly more approachable (Fig. 6)
- Placing a static brush head in the calf pen was shown to be attractive to them and they were frequently observed using it (Fig. 3)

References

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