



Enrichment items during turnout – effect on horse behaviour?

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Overview



- Background
 - Horse housing
 - Enrichments
 - Aim of the experiment
- Study 1
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 - Results
- Discussion
- Conclusion



Background I

- Barren environments and social isolation have been related to behavioural problems (Luescher et al., 1991; Nicol, 1999; Cooper et al., 2000; Henderson, 2007)
 - Often not given *ad libitum* roughage but rather few meals with most energy from concentrates
 - Positive behavioural effects of group housing (e.g. Christensen et al., 2002; Heleski et al., 2002; Rivera et al., 2002; Søndergaard and Halekoh, 2003; Søndergaard and Ladewig, 2004)
- Still the most common way of housing horses is in individual tie-stalls or in boxes (Bachmann & Stauffacher, 2002; Søndergaard et al., 2002)

Background II

- A range of products for enrichment are available in shops
- A few studies on environmental enrichments for horses (review: Henderson and Waran, 2001)
- What is an enrichment?
 - Newberry (1995): “an improvement in the biological functioning of captive animals resulting from modifications to their environment”
 - Animals kept individually: reduce boredom, apathy or stereotypies
 - Animals kept in groups: reduce aggressive interactions, movement



The aim of the experiment

- To test the effect of different enrichment items on horses' activity and behaviour

Kept either individually

or in groups



- Hypothesis:
 - Individual horses -> less passive
 - Horses in social groups -> fewer aggressive interactions

Materials and methods I



● Study 1

- 8 individually kept, adult, warmblood horses
- Systematically rotated through 8 individual paddocks with one of 7 additional items (1 control)
- Instantaneous sampling every minute 1 hour at the start (10:00 to 11:00) and end of the turnout period (14:00 to 15:00)
- Behaviours observed
 - Item directed activities, passive or active independent of item



Additional items



BALL



25 cm diameter
Canac activity
ball

CBALL



Ball with 0.5 kg
standard pellets

CONE



31 cm tall, soft
plastic cone

POLE



1.10 m tall, 8 cm in
diameter

STRA



2 kg barley straw

BRAN



Spruce, Birch and
Sallow

PEAT



5 litres Herbia peat
soil



Barren paddock

Results study 1

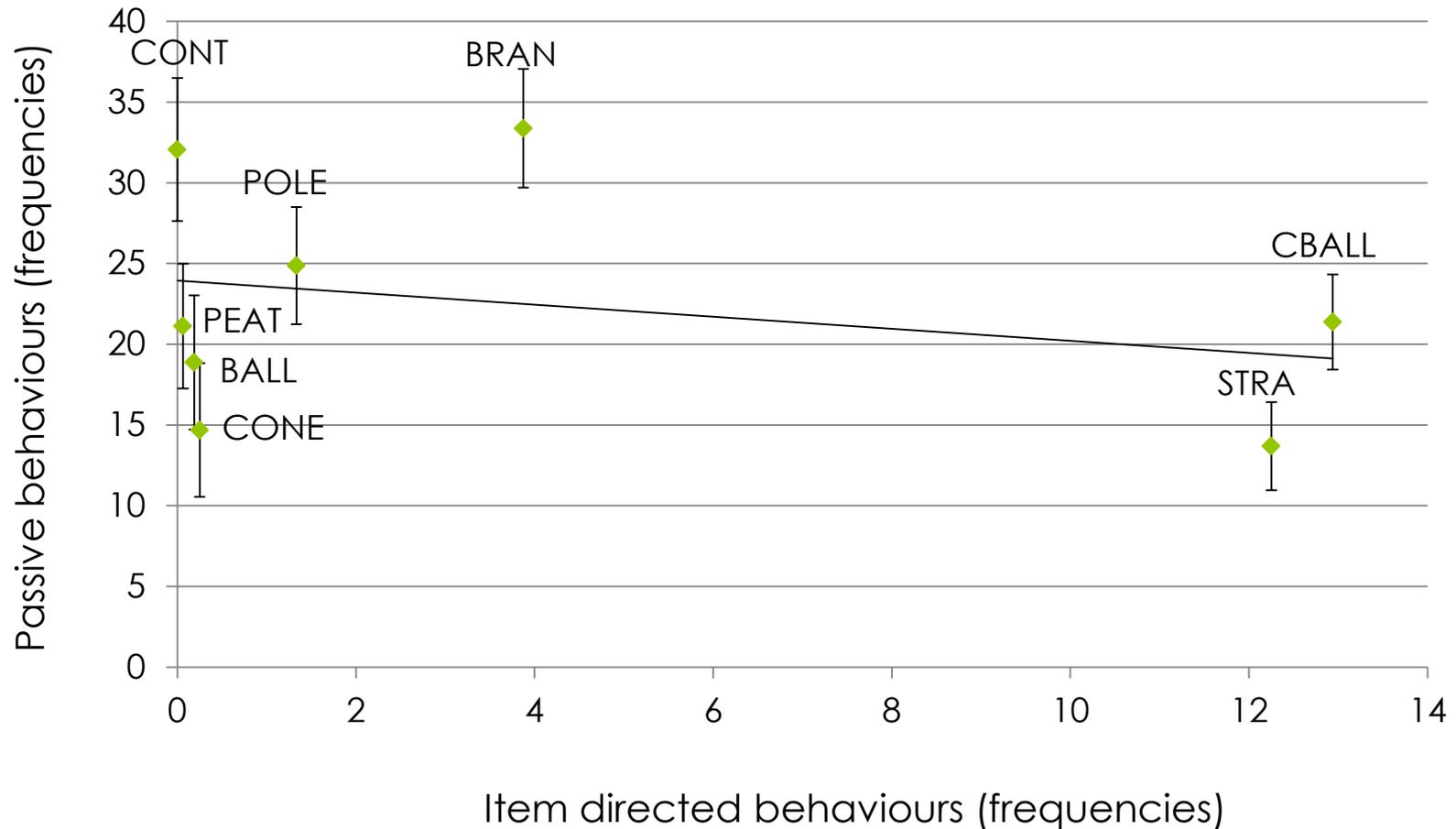


	CONT	BALL	CBALL	CONE	POLE	STRA	BRAN	PEAT	P-value
Behaviour (mean ± SE % of tot obs)									
Item directed behaviours	-	0.3 ± 0.2	13.7 ± 4.8	0.4 ± 0.2	2.1 ± 1.9	20.0 ± 5.7	6.3 ± 1.9	0.1 ± 0.1	<0.05
Passive	52.5 ± 7.2	30.9 ± 6.8	35.0 ± 4.8	24.0 ± 6.7	40.7 ± 5.9	22.4 ± 4.5	54.7 ± 6.0	34.6 ± 6.3	<0.0001
Active, other	47.4 ± 7.2	68.7 ± 6.7	51.2 ± 4.5	75.5 ± 6.8	57.0 ± 6.0	57.4 ± 4.9	38.9 ± 5.9	65.2 ± 6.3	<0.0001

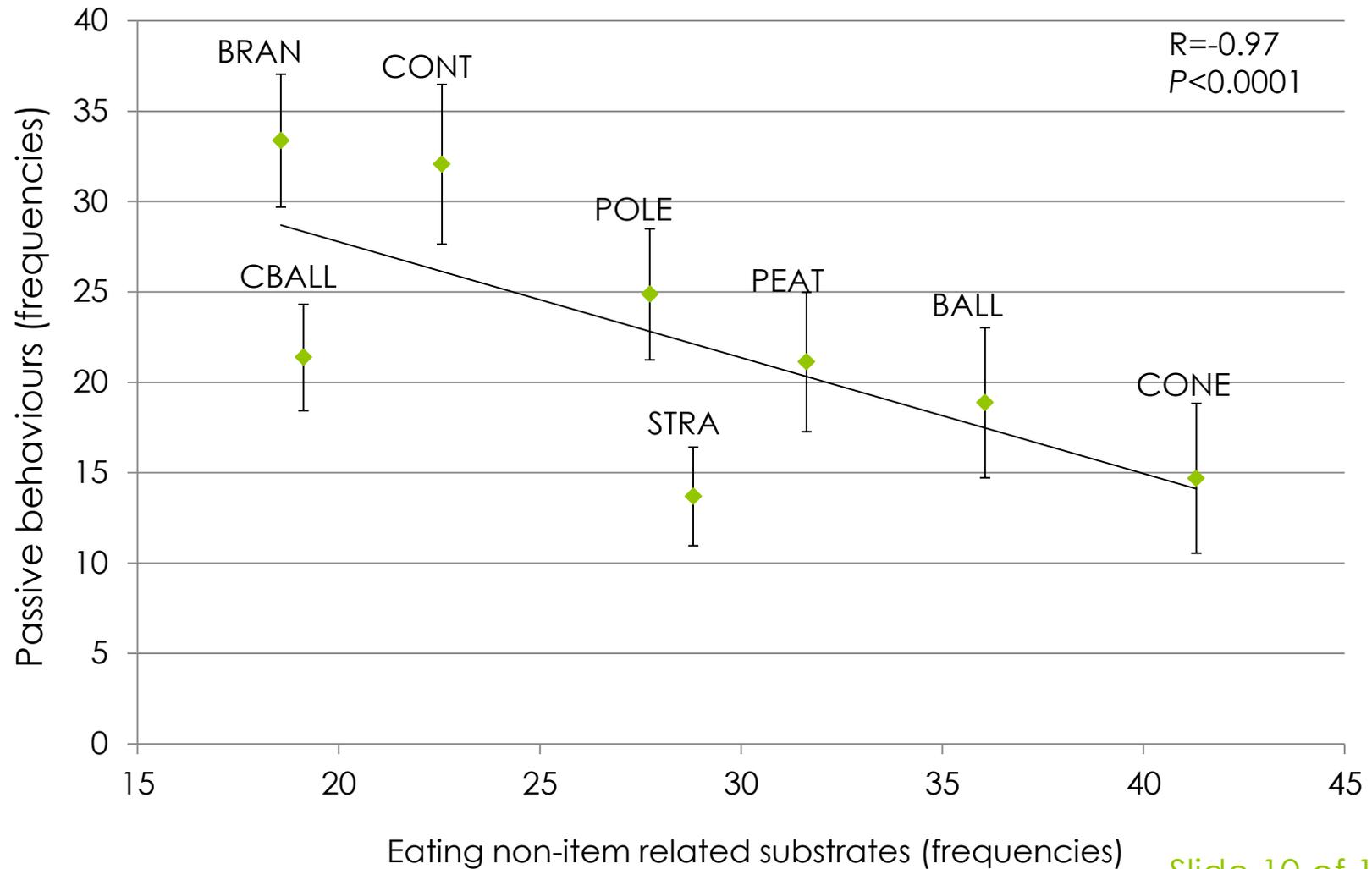
Passive behaviours vs. item directed

Study 1. Individual horses

R=-0,19
P=ns



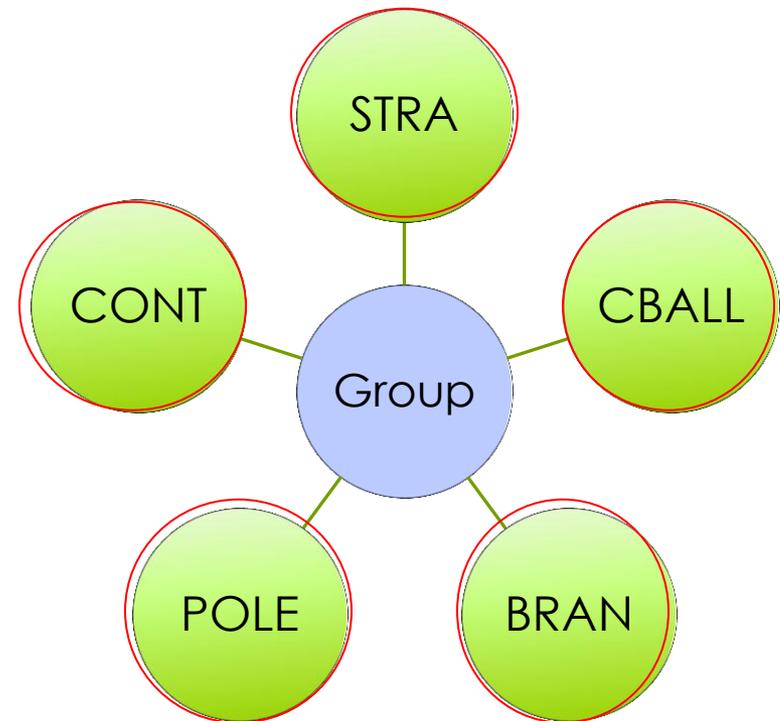
Passive behaviours vs. eating



Materials and methods II



- Study 2
 - 6 groups of riding horses (3-4 horses/group)
 - Different breeds, mares and geldings
 - 4 days with each item
- Same observation method and behaviours + social interactions



Results study 2

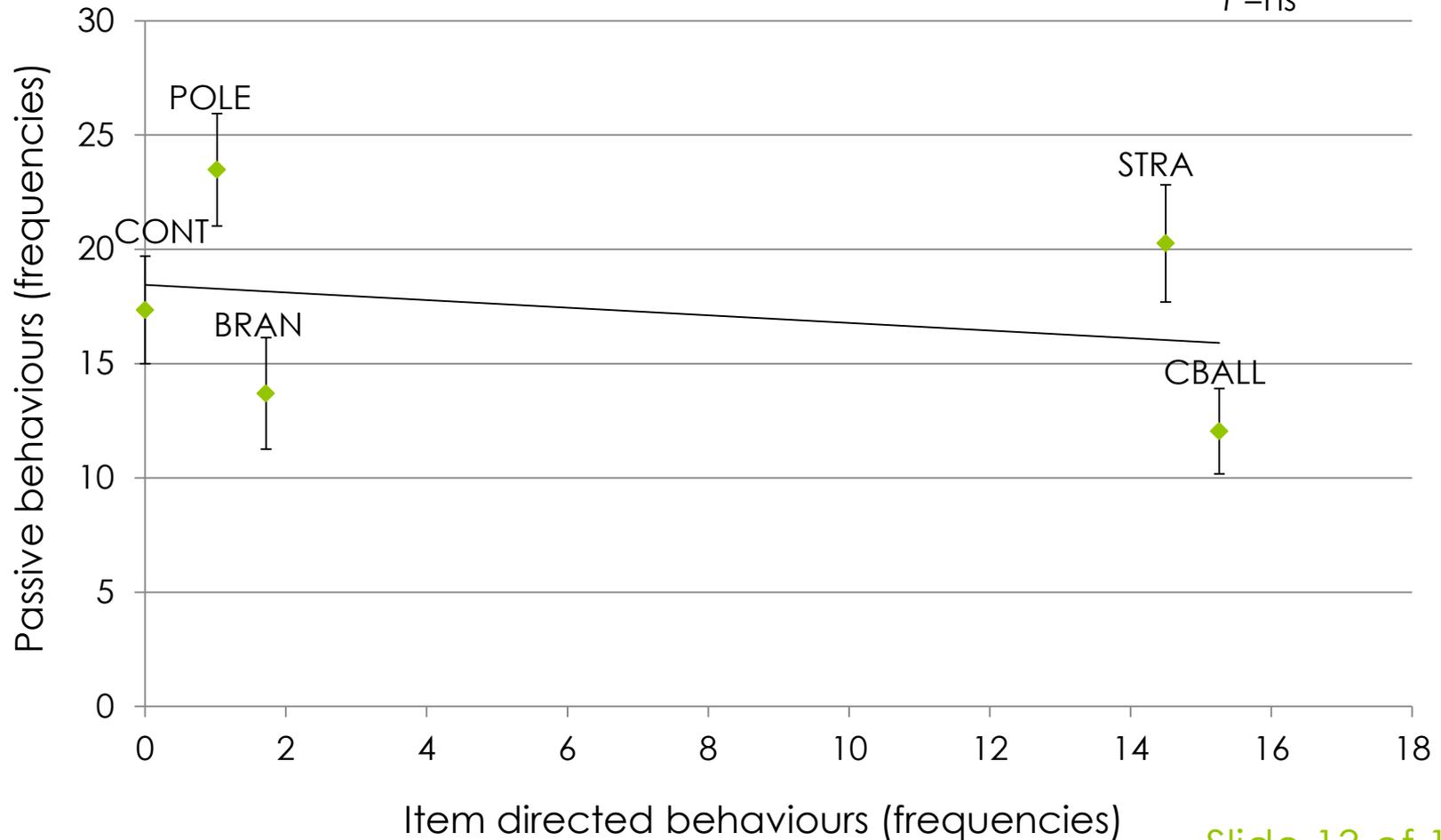


	CONT	CBALL	POLE	STRA	BRAN	P-value
Behaviour (mean ± SE % of tot obs.)						
Item directed behav.	-	26.0 ± 4.7	1.7 ± 0.4	23.7 ± 3.5	2.8 ± 0.7	<0.0001
Passive	29.4 ± 3.9	19.7 ± 3.0	38.9 ± 4.1	33.2 ± 4.2	22.4 ± 4.0	<0.0001
Active, other	64.8 ± 4.0	50.2 ± 4.8	52.8 ± 3.9	41.0 ± 4.4	68.4 ± 3.9	<0.0001
Social behav.	5.7 ± 1.3	4.5 ± 1.6	6.5 ± 1.5	1.9 ± 0.8	6.2 ± 1.4	<0.0001

Passive behaviours vs. item directed

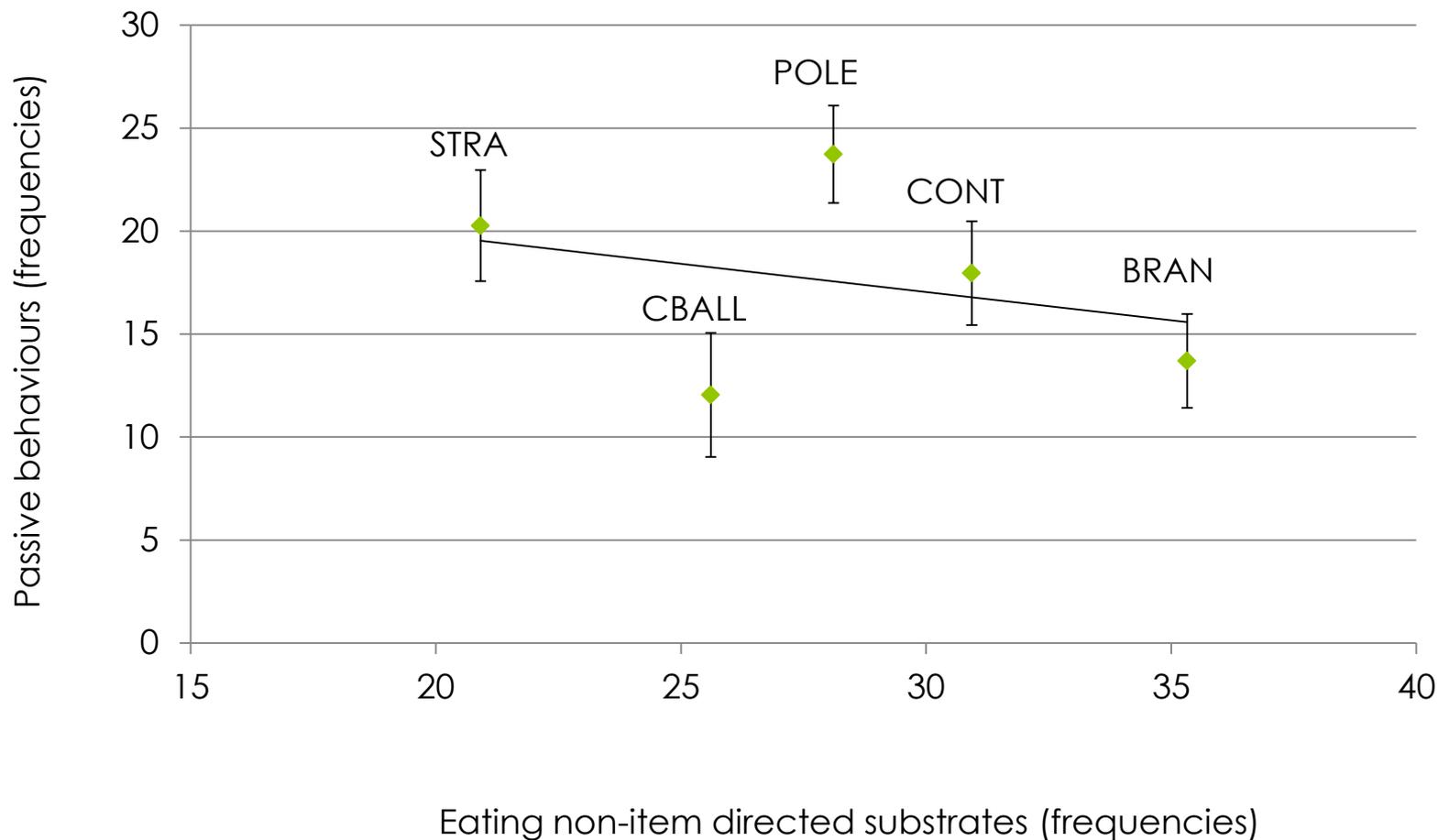
Study 2. Horses kept in groups

R=-0.12
P=ns



Passive behaviours vs. eating behaviour

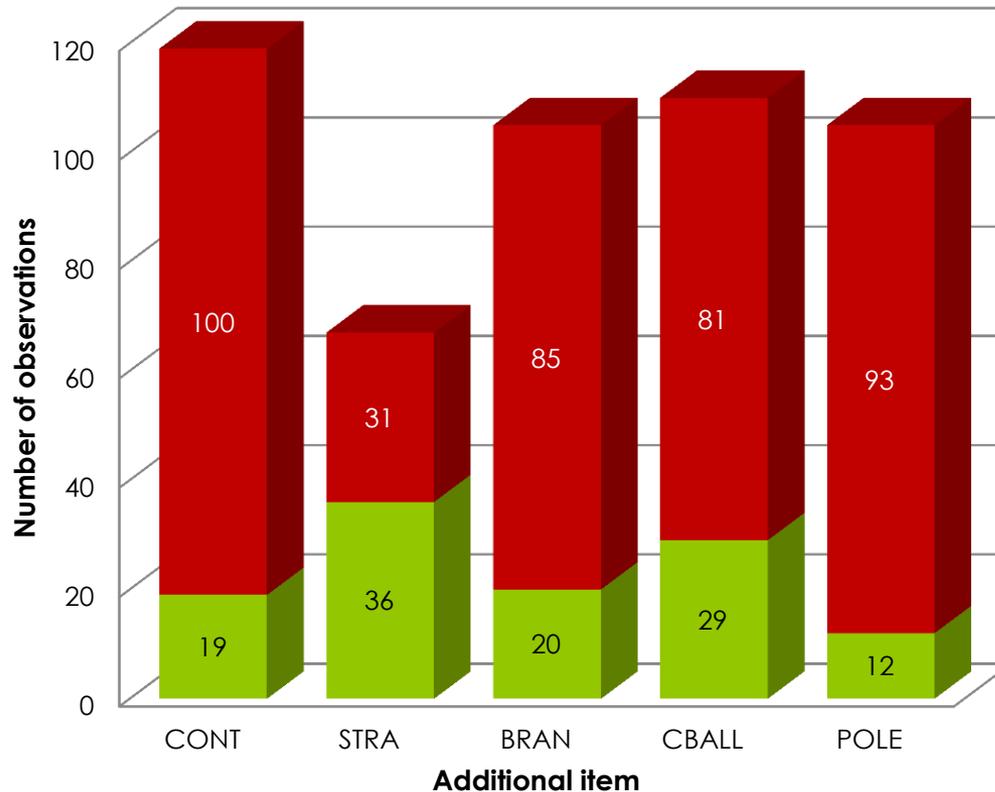
R=-0.67
P<0.0001



Social interactions



- Provision of straw = fewer aggressive interactions ($F_{4,215}=7.2$; $P<0.0001$)



- Aggressive interactions
- Friendly interactions



Discussion

- Edible items were more attractive
 - Amounts
 - Number of piles/objects
 - Aggression
- Also opportunity for increasing structural complexity in groups of horses
- No knowledge of long term effects of CBALL
 - Frustration? Stress? Stomach ulcers?



Conclusion



- Horses interacted the most with edible items like CBALL or straw
- Group housed horses showed a reduction in number of social interactions when given straw
- Providing edible items like straw might function as an environmental enrichment for horses either kept individually or in groups



Thank you for your attention

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- Any questions?

