Comparison of different weaning methods in horses

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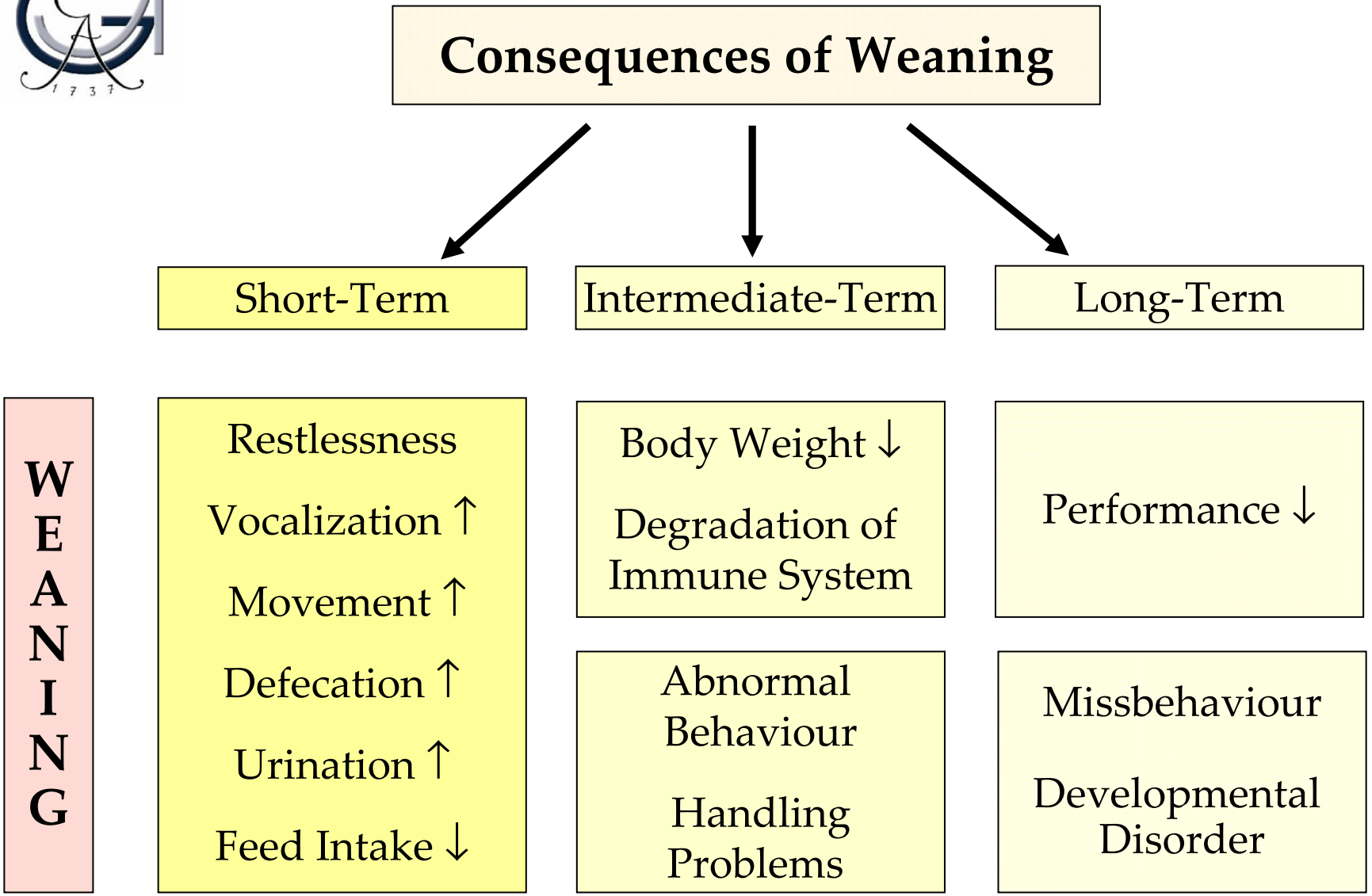
Artifical Weaning

- Offspring-mother separation (weaning) is a natural stepwise process

- Under farm management conditions it is normally done in one step at an early age of life (6 to 8 months)

➡ Sudden break of the mother – offspring bond

➡ Stressful event



(Houpt et al., 1984; McCall et al., 1985; Hoffman et al., 1995; Moons et al., 2005)

Weaning methods

Traditional (one-step) weaning

Multistep weaning

Weaning methods

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Multistep weaning

- Preparation for separation
- Contact possible depending on system

  ⇒ **Fence weaning**

  ⇒ **Trainer Horse Method**

  ⇒ **Simulation of "Natural Way"**

Weaning methods

Traditional (one-step) weaning

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  ⇒ **Simulation of "Natural Way"**

Question

Which weaning method is most animal friendly?

Experimental setup

Weaning system	Weaning age (months)	n
Traditional Weaning	7.5	6
Trainer-Horse	7.5	7
“Natural Way”	7.5	8

- Horses within groups did know each other
- All foals were weaned on pasture in habitual environment

“Natural Way”

First:

- Three mares of oldest and most developed foals were taken out of group

2 weeks later:

- Four further mares were separated from their foals in the same way, while one mare remained

4 weeks later:

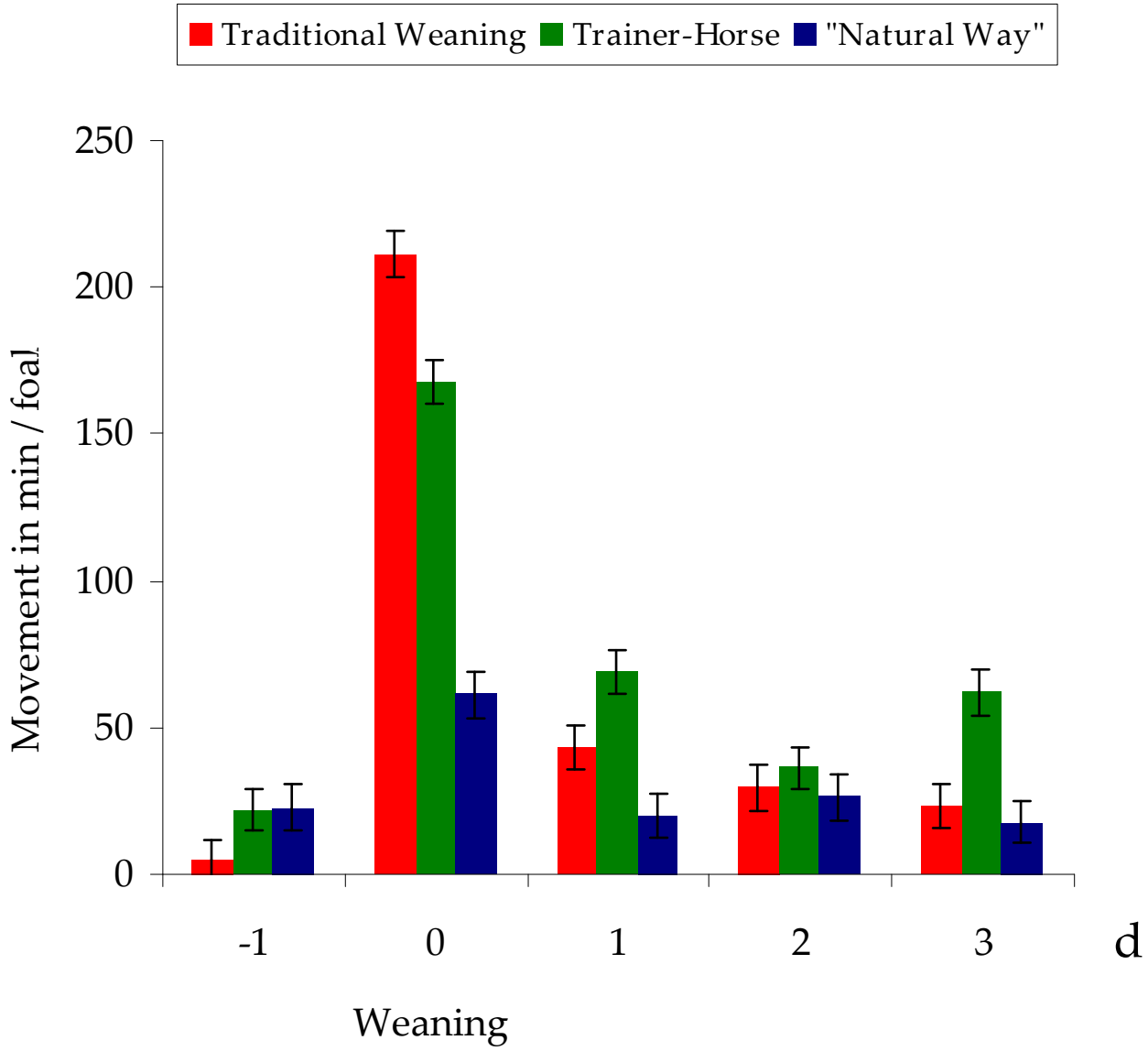
- Last mare was removed from the group

Observation of foals behaviour

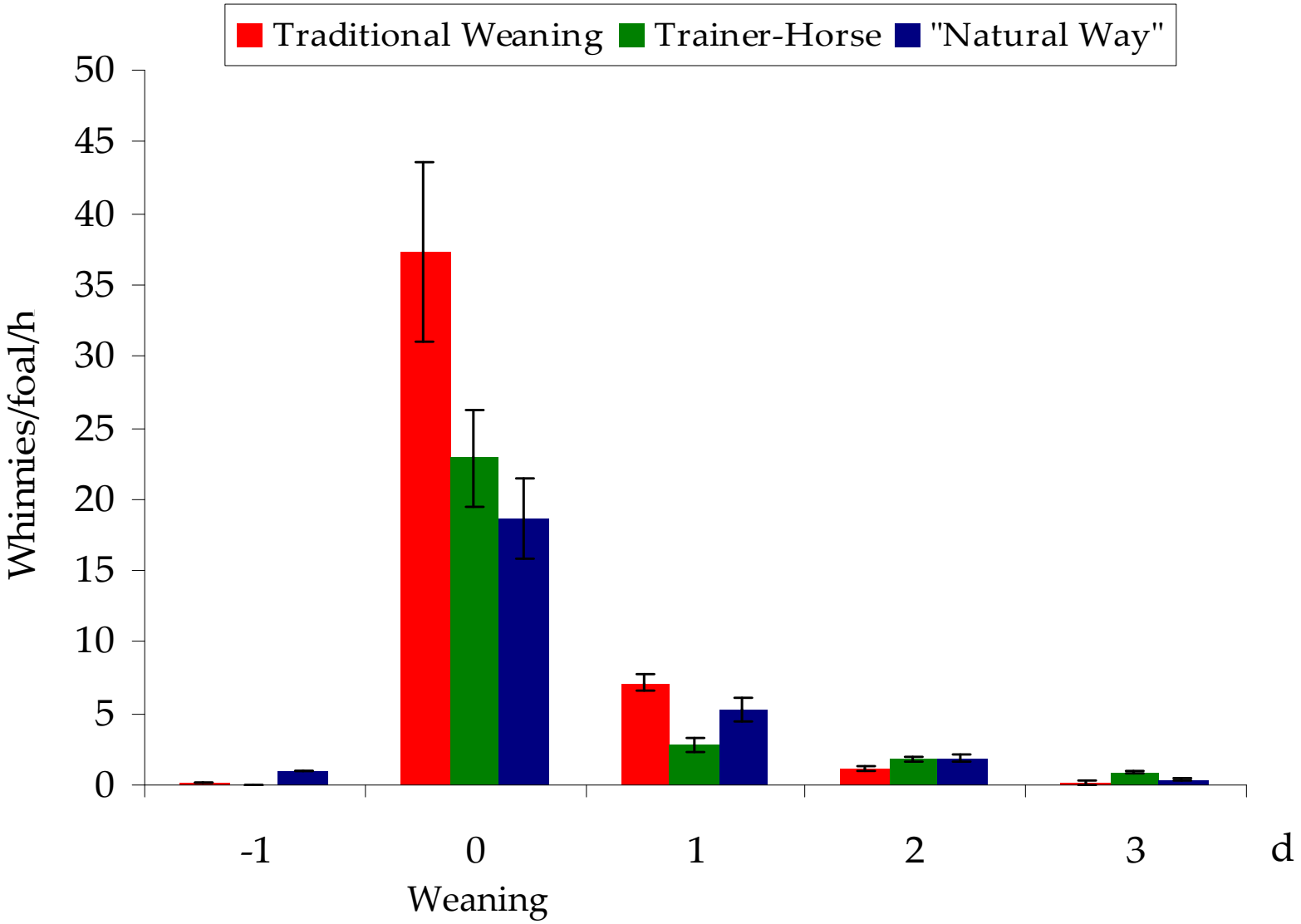
- Direct observation: 5 days (6 h / d)
- Time-Sampling-Method
  → Interval: 10 min
  → Movements in min / foal / day
- Continuously recording of vocalization
  → Whinnies / group / hour

- Statistical analysis:
  → Procedures MEANS and MIXED of SAS (Version 9.1)

Movement in minutes



Vocalization frequency per foal and hour



Conclusions

In consequence of weaning

⇒ all foals showed changes in behaviour patterns

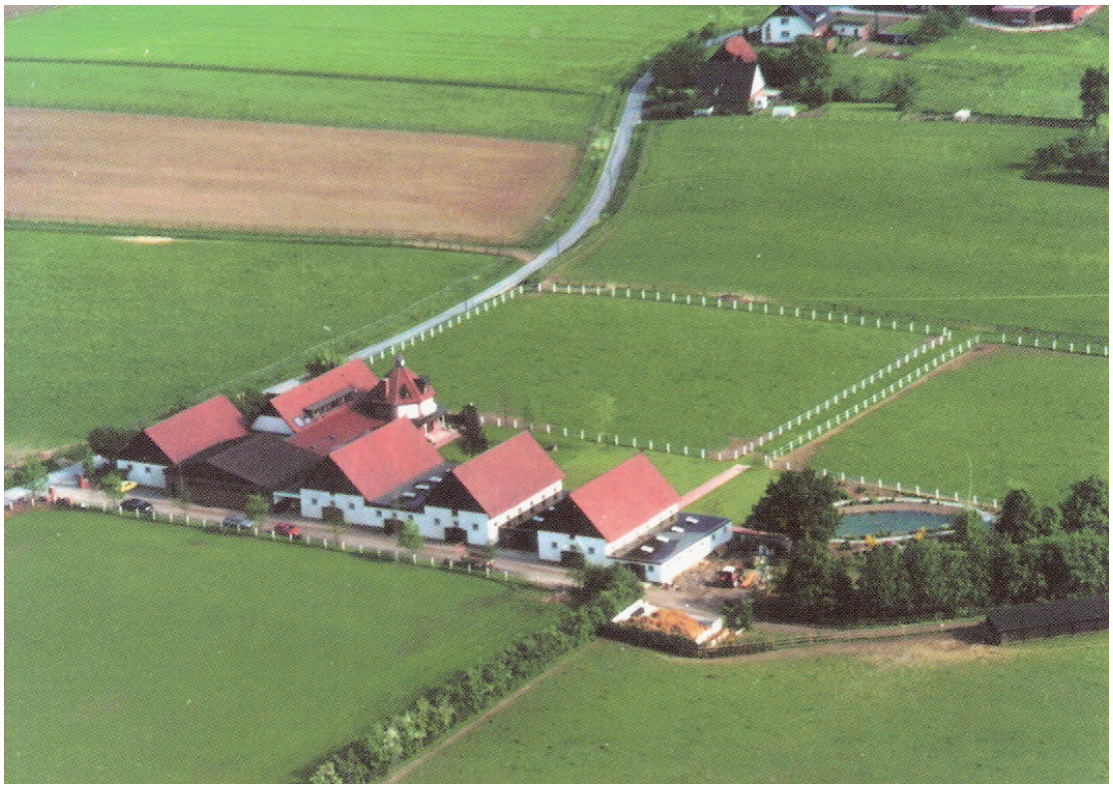
Traditional > Trainer horse > “Natural way”

⇒ Less stress for multistep weaned foals in regard to movement and vocalization

⇒ Best in sense of animal welfare (?)

⇒ Studies on long term effects are needed!

Thanks to the Stud “Auenquelle” for supporting this project!



Thank you for your attention!

Statistical model (MIXED)

$$y_{ijklm} = \mu + M_i + G_j + D_k + M_i*D_k + F_l\,(M_i) + e_{ijklm}$$

Y_{ijklm}	=	Observed value
μ	=	Mean
M_i	=	Fixed effect: Method
G_j	=	Fixed effect: Gender
D_k	=	Fixer effect: Day
M_i*D_k	=	Effect interaction: Method * Day
$F_l\,(M_i)$	=	Random effect of foal within method
e_{ijklm}	=	Random error

Influence on behaviour traits

Behaviour	Method	Day	Method*Day
Eating	p = 0,01	p = 0,038	p = 0,001
Drinking	n.s.	n.s.	n.s.
Staying	p = 0,001	p = 0,001	p = 0,001
Laying	p = 0,001	p = 0,017	p = 0,001
Movement	p = 0,001	p = 0,001	p = 0,001
Comfort Behaviour	n.s.	n.s.	n.s.
Social Interaction	n.s.	p = 0,035	p = 0,026
Chew Wood	n.s.	n.s.	p = 0,002

(p > 0,05)

Means of vocalization frequency per group and day within observation period

Day	Trainer-Horse	Traditional Weaning	Simulation nat. way 1	Simulation nat. way 2
	Whinnies per group and day ± SD			
- 1	0 [a, c] ± 0	2 [a, c] ± 0	9 [a, d] ± 3	
0	1124 [b, c] ± 141	1343 [b, c] ± 224	108 [a, c] ± 36	604 [b, c] ± 101
1	119 [a, c] ± 20	212 [a, c] ± 21	98 [a, c] ± 25	58 [a, c] ± 12
2	63 [a, c] ± 13	36 [a, c] ± 7	18 [a, c] ± 6	43 [a, c] ± 6
3	36 [a, c] ± 6	4 [a, c] ± 1	2 [a, c] ± 1	14 [a, c] ± 2

[a, b] different letters mark significant differences between days within observation period ($p < 0,05$)

[c, d] different letters mark significant differences between methods within observation day ($p < 0,05$)

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