



# Calf play as an indicator for weaning and separation stress in CCC systems

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# Play as welfare indicator in calves



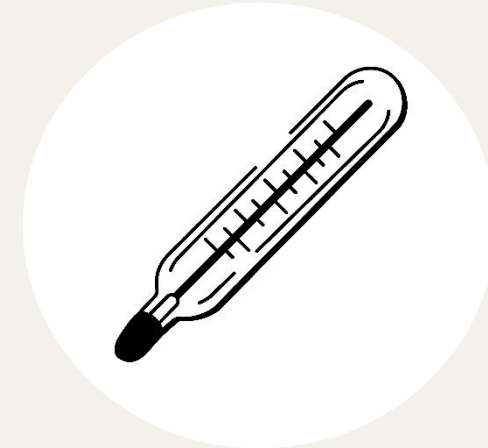
Play is sensitive to pain, low energy intake and poor health:



Mintline et al., 2013



Krachun et al., 2010, Rushen et al., 2016,  
Jensen et al., 2015



Bertelsen and Jensen, 2019



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*animals that do not feel well will play less*

# Play as welfare indicator in calves



- Calves show a **rebound of locomotor play** after being unable to perform it (Jensen, 1999; Jensen and Kyhn, 2000; Jensen, 2001)
  - Social play in calves is modulated by **internal opioids** (Sutherland et al., 2019)
- ➡ Play is likely a self-rewarding, pleasurable experience
- ➡ *Animals that play, have likely not only neutral, but positive welfare*





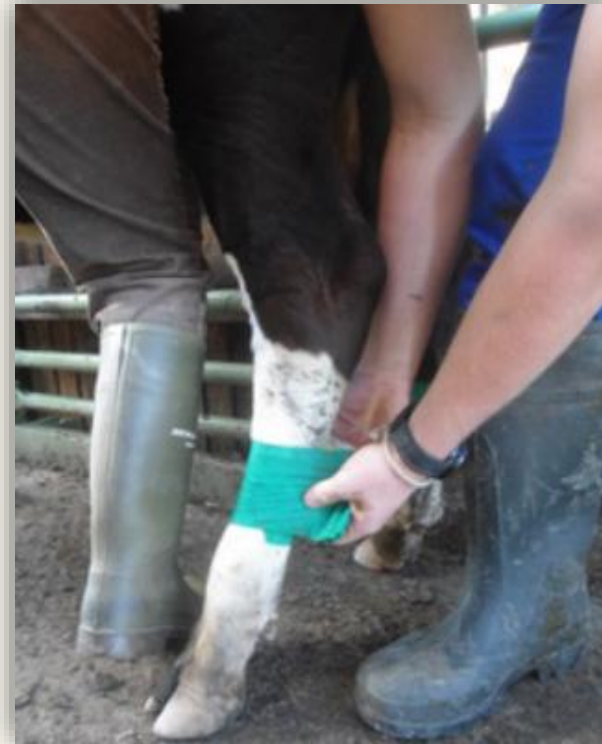
# Play as welfare indicator in calves



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# How can we measure play?

## Automatic recording of calves' locomotor play with accelerometers

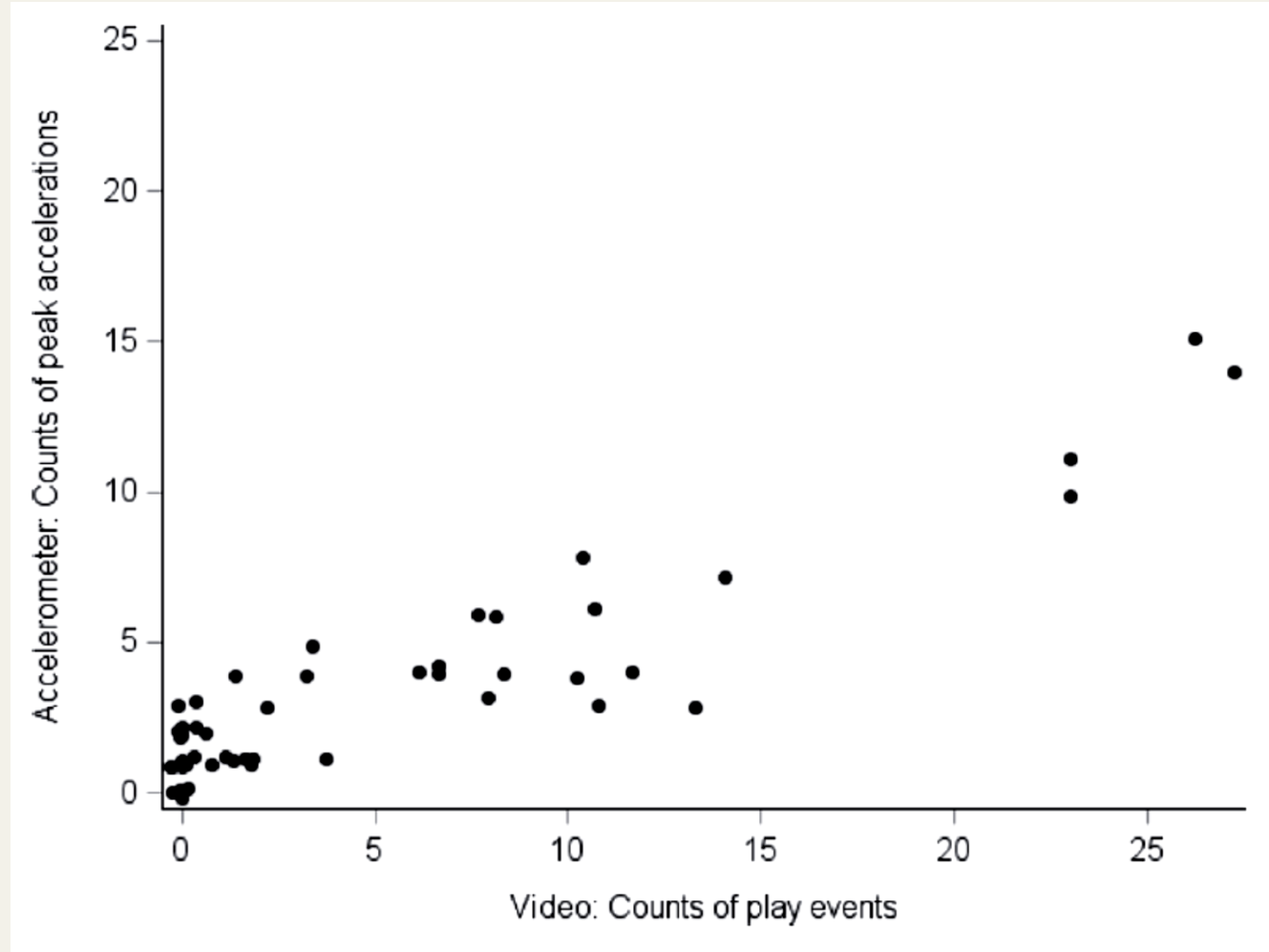


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# How can we measure play?



Größbacher et al., 2020



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# Play behaviour during weaning and separation



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# Aim

## Comparison of calves' stress responses when separated with

**Nose flap (NF)**



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or

**Gradual reduction of cow-  
calf contact time (GR)**





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# Methods

## 3 months old

		WEANING AND SEPARATION START														TOTAL SEPARATION																					
		↓														↓																					
Day relative to treatment start		...	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
NF Treatment	Full time cow-calf contact											Full-time contact with nose flap					Fence-line contact					Calf moved to Youngstock barn															
GR Treatment	Full time cow-calf contact									Half-day contact (8:30 a.m. - 3:30 p.m.)		Morning contact (08:30 a.m. - 12:00 p.m.)							Fence-line contact					Calf moved to Youngstock barn													

over 3 weeks



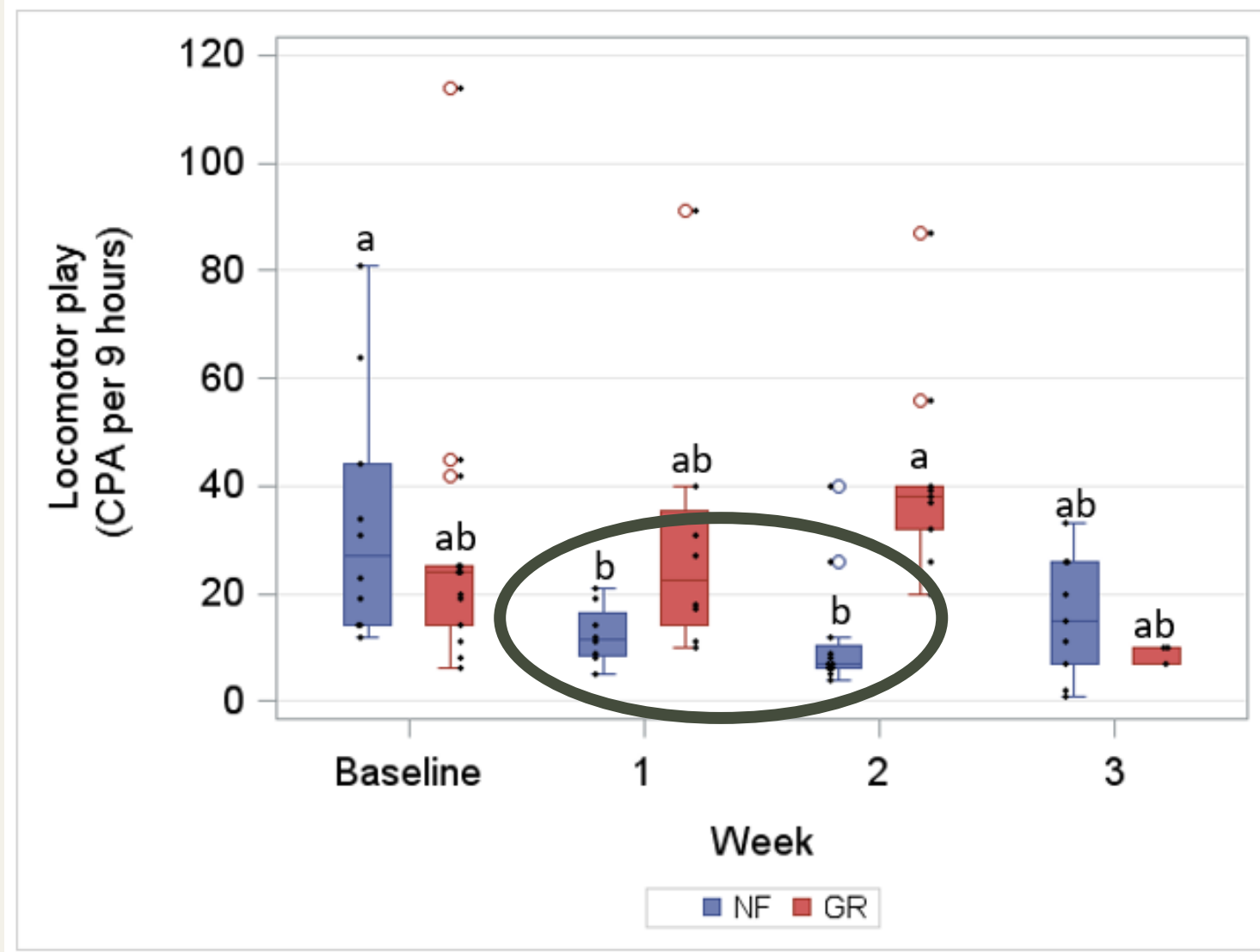
# Results: Locomotor play

Measured:

**1 day per week  
for 9 hours**

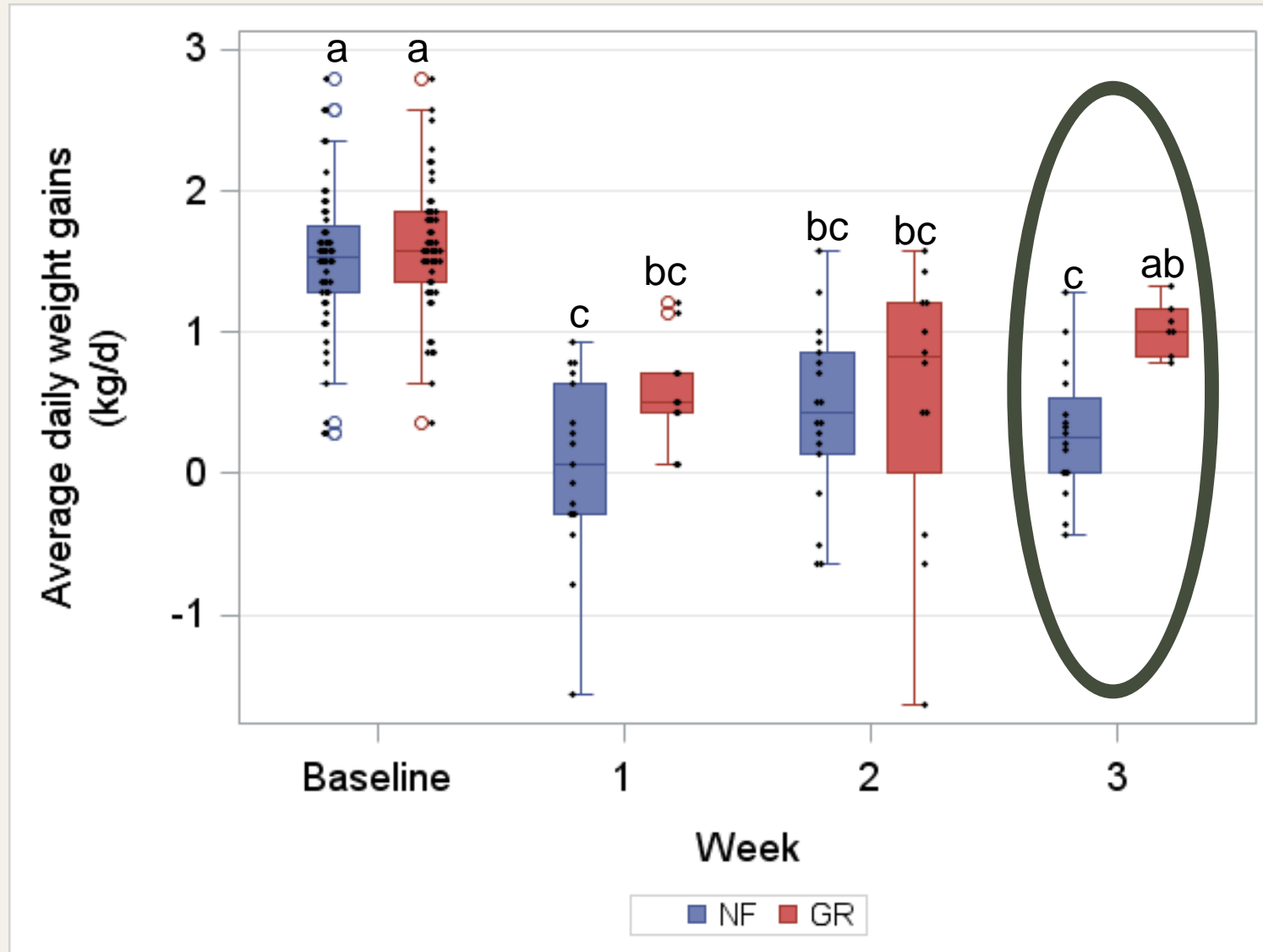


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N= 13 NF & 15 GR; a,b = P<0,05

# Results: Weight gains



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N= 18 NF & 18 GR; a,b = P<0,05

# Conclusions

➡ Weaning has a negative effect on the amount of locomotor play in 3-month-old calves

➡ Play can be used as an indicator for (weaning) stress



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**Thank you for your attention**



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