

Innovationscenter
for Økologisk Landbrug

Halvtidskontakt i systemer med ko og kalv samvær

Fokus på effekten ved fravæning



HALVTIDSKONTAKT – EN LØSNING?

Økonomi og praktik

“Mister” mindre mælk (~12,5L vs. 15L) og ydelsen kommer tilbage efter fravænning

Data fra natlig halvtidskontakt,
Barth et al. 2020

Kører på græs uden kalve

Velfærdsrelateret

Separations stress ??

Negative “bivirkninger” ??

Formål

At sammenligne effekten af halvtidskontakt med fuldtidskontakt og en kontrolgruppe

Fokus på kalven

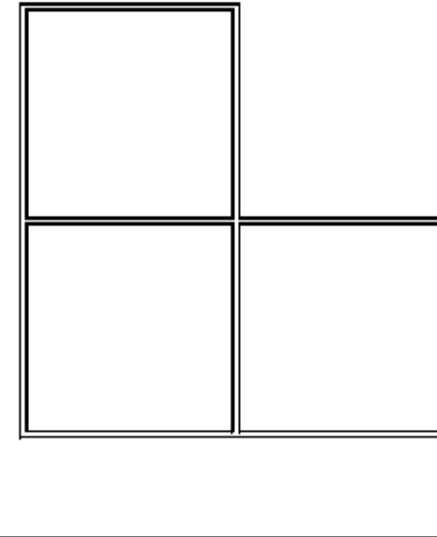
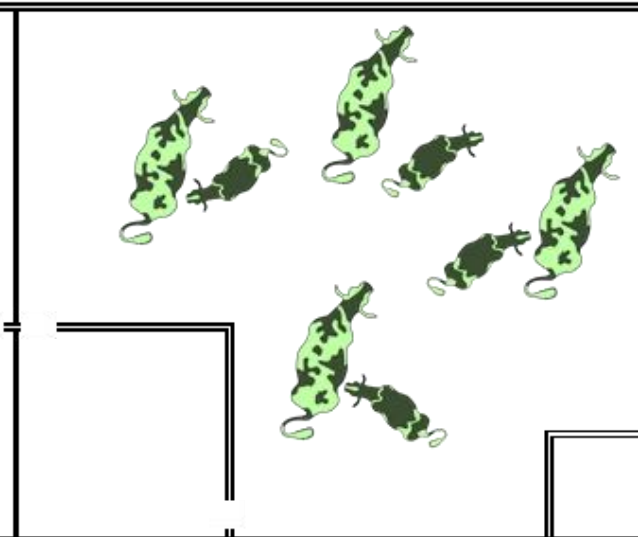
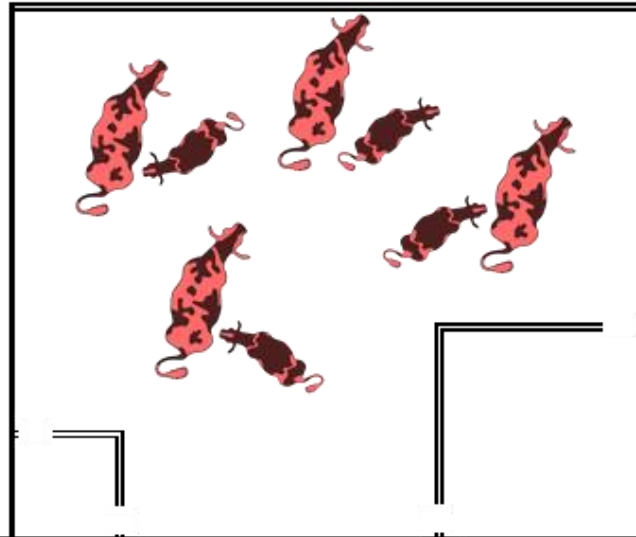
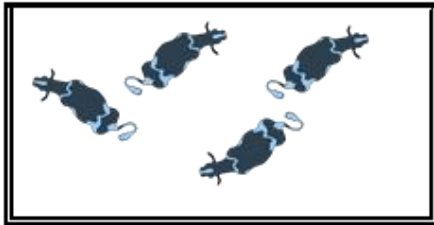


**FORSØG PÅ FOULUM
TIDEN FØR FRAVÆNNING**

Kontrol

Halvtid (10/24h)

Fuldtid (23h/24h)



Video observationer:

- Tidsbudget, position i boksen, nærhed mellem dyr



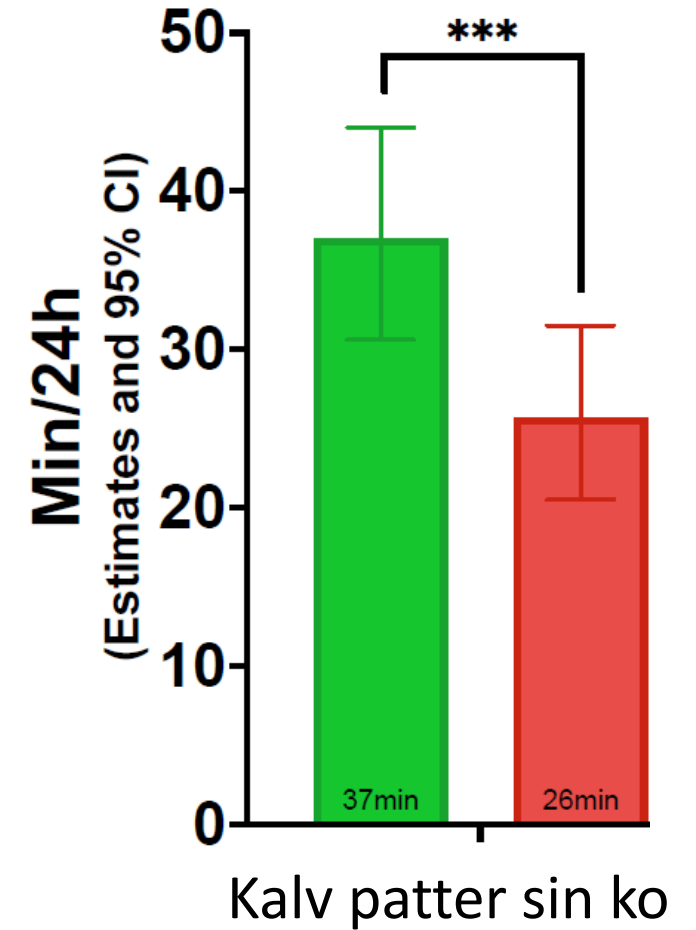
Maja Bertelsen



RESULTATER: KO-KALV INTERAKTIONER



Fuldtid
Halvtid



HALVTIDSKØERNE KOMMER HJEM



RESULTATER: SULTNE KALVE?

Hvor lang tid gik der før
halvdelen af kalvene havde
genforenet sig?

Uge 5

Fuldtid

~7 min

Halvtid

~0.3 min

Hvor mange pattede
på en fremmed ko?

Uge 5

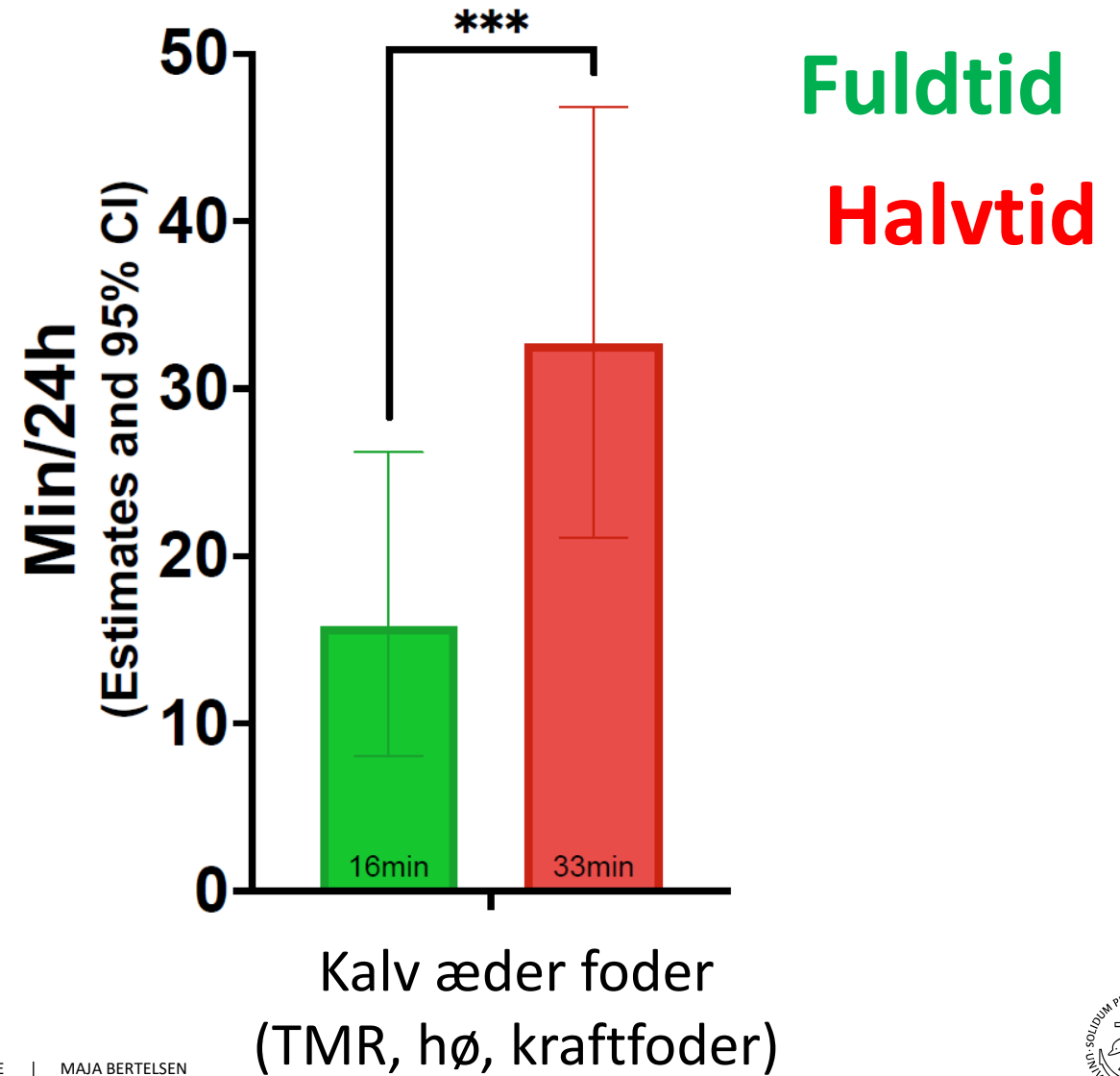
Fuldtid

(1/21 calves)

Halvtid

(17/24 calves)

RESULTATER: ÆDETTID



OPSAMLING PÅ PERIODEN FØR FRAVÆNNING

Halvtidskalve

- havde kortere tids interaktioner med deres ko
- viste mere tegn på sult / afsavn
- brugte mere tid på at æde foder



FORSØG PÅ FOULUM FRAVÆNNING OG SEPARATION

**Er Halvtidskalvene så bedre rustet til at blive fravænnet og separeret fra koen?
Hvad hvis vi fravænner og separerer i to trin?**



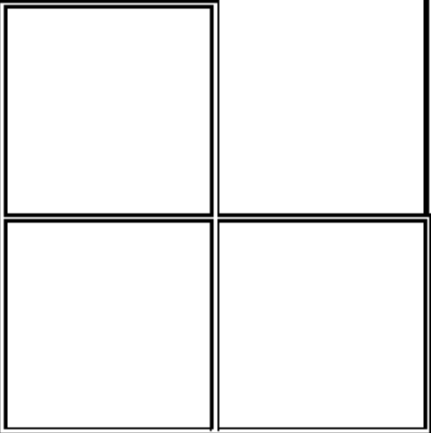
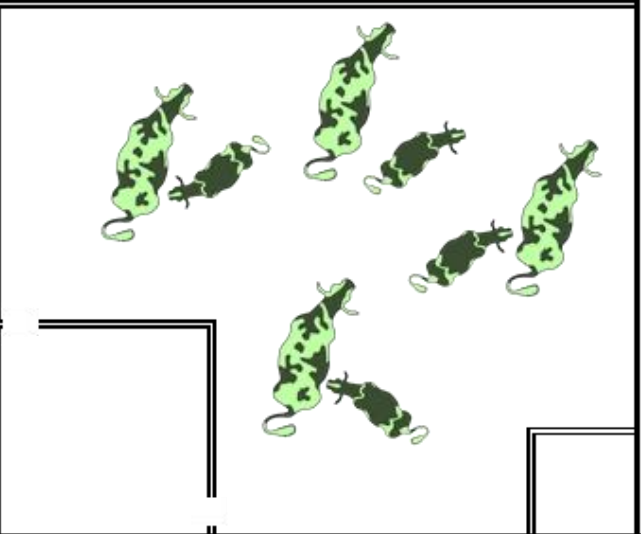
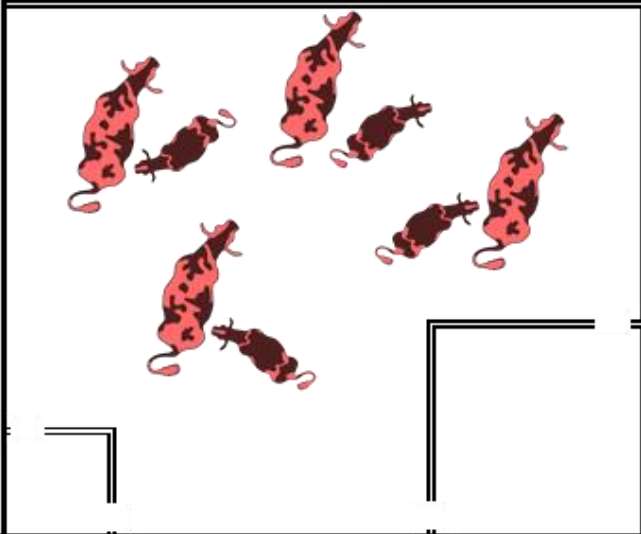
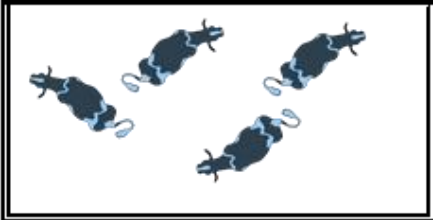
FORSØGSDESIGN

Uge 1-8

Kontrol

Halvtid (10/24h)

Fuldtid (23h/24h)



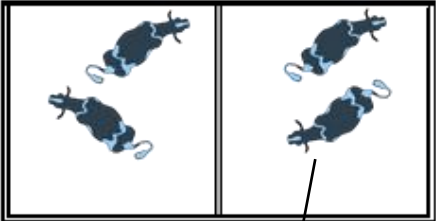
FORSØGSDESIGN

Uge 8

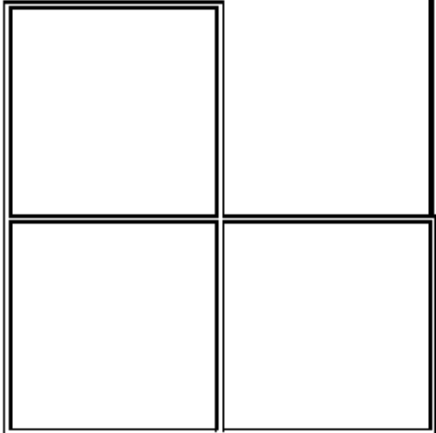
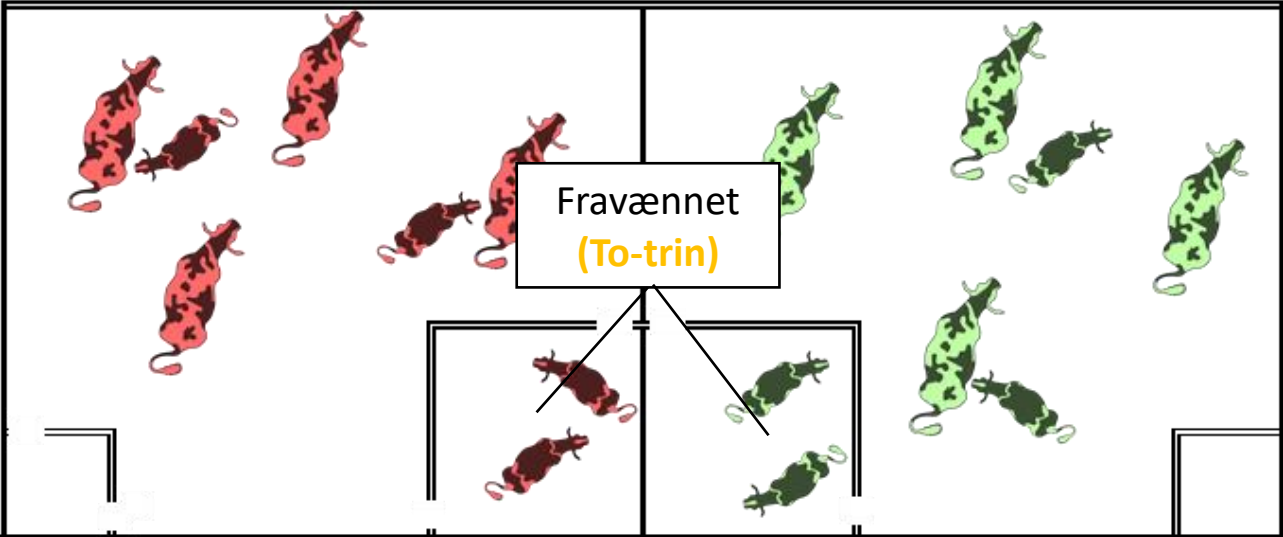
Kontrol

Halvtid (10/24h)

Fuldtid (23h/24h)



Fravænet
(To-trin)



Tælle “kald/brøl” efter 4t, 21t, 29t, 45t

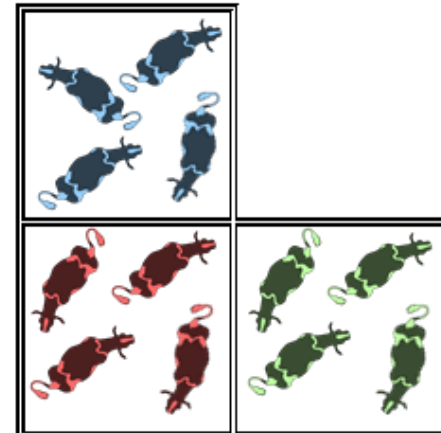
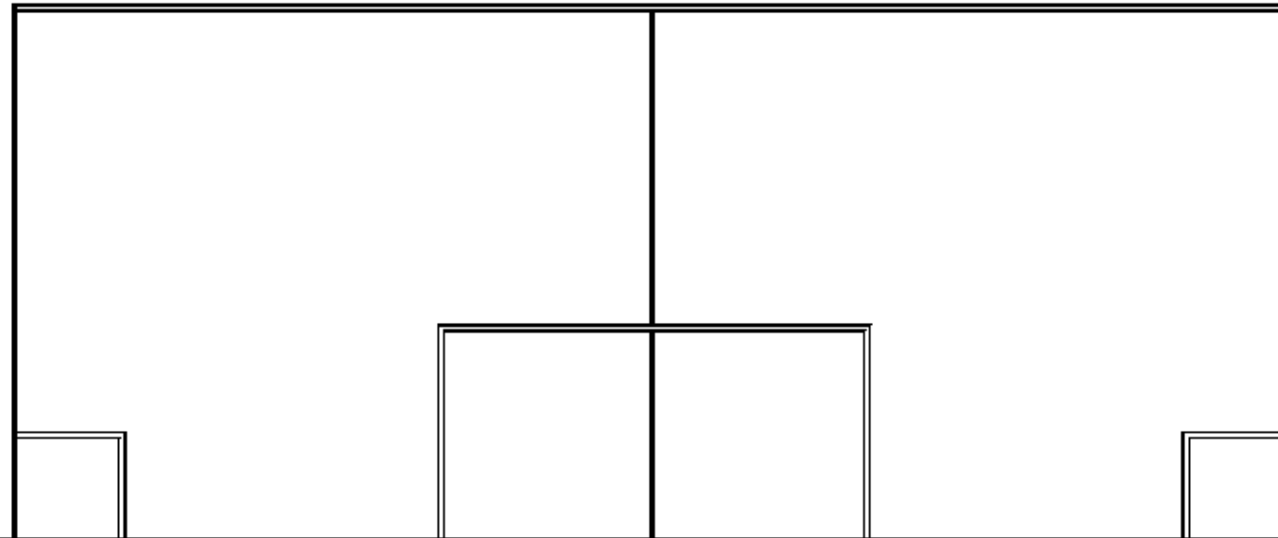
FORSØGSDESIGN

Uge 9

Kontrol

Halvtid (10/24h)

Fuldtid (23h/24h)



FORSØGSDESIGN

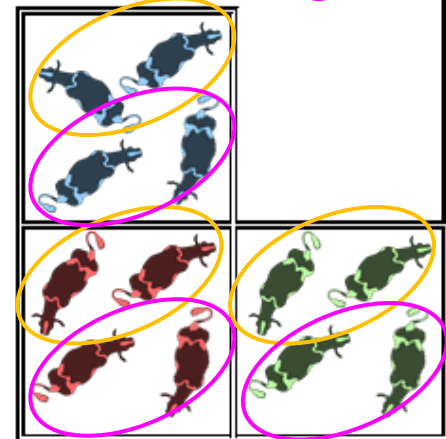
Uge 9

Kontrol

Halvtid (10/24h)

Fuldtid (23h/24h)

To-trin
Samtidig



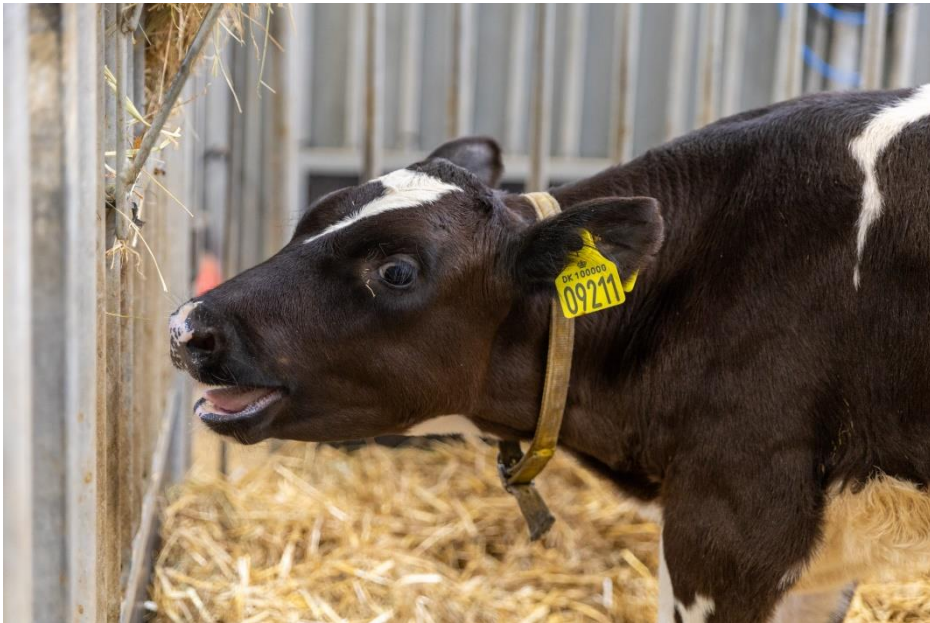
Tælle “kald/brøl” efter 4t, 21t, 29t, 45t



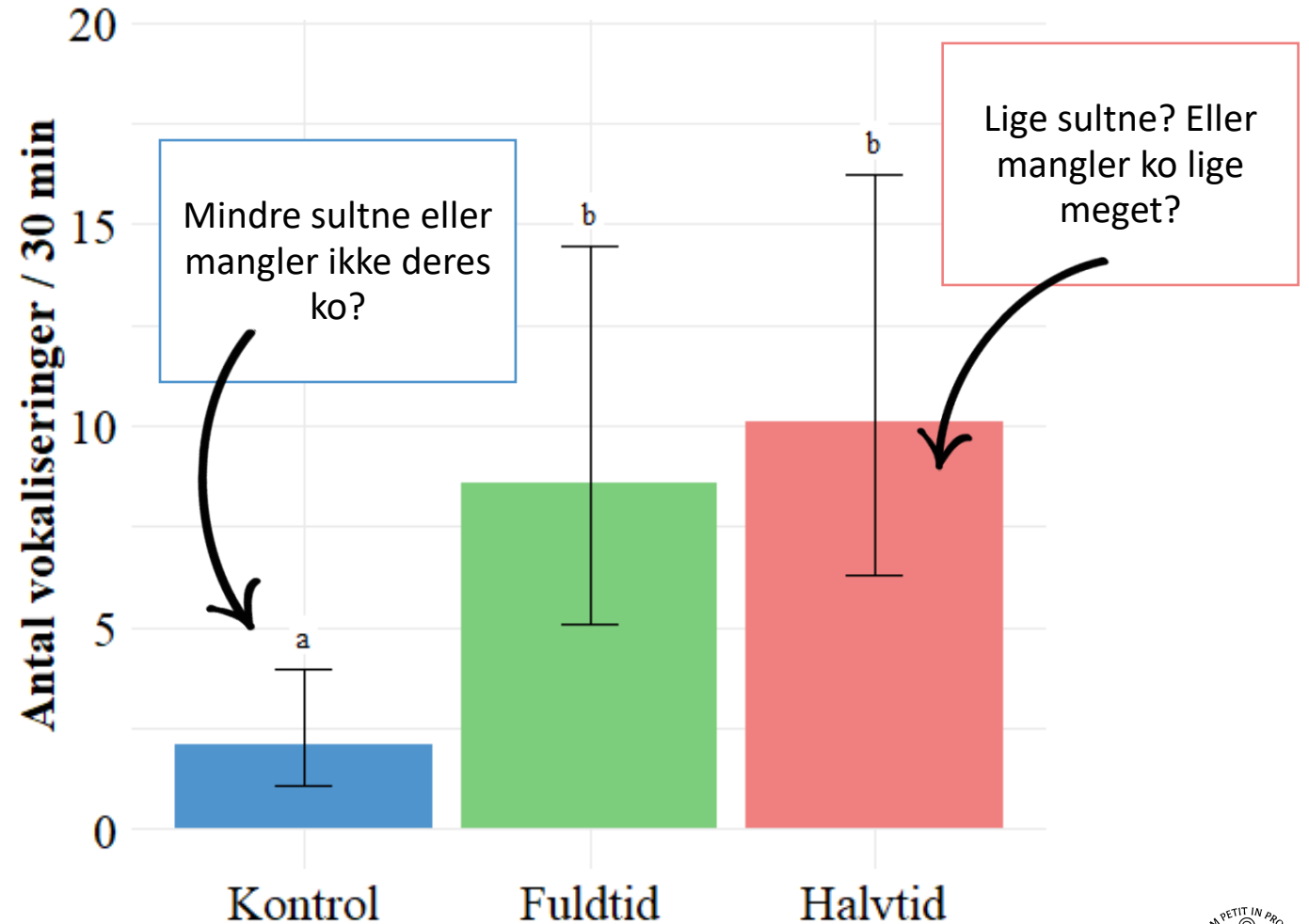
RESULTATER

Effekt af ko-kalv kontakt niveau

(Kontrol, Fuldtid eller Halvtid)



Brølen ved fravæning og separation

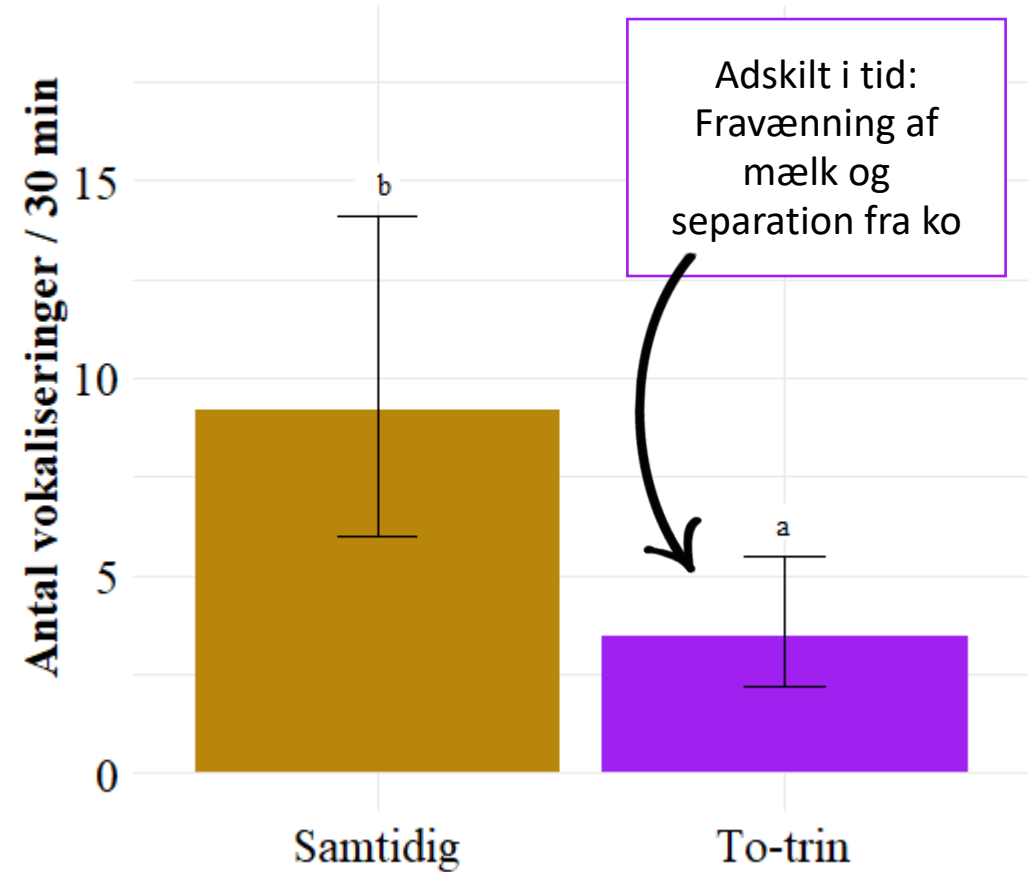


RESULTATER

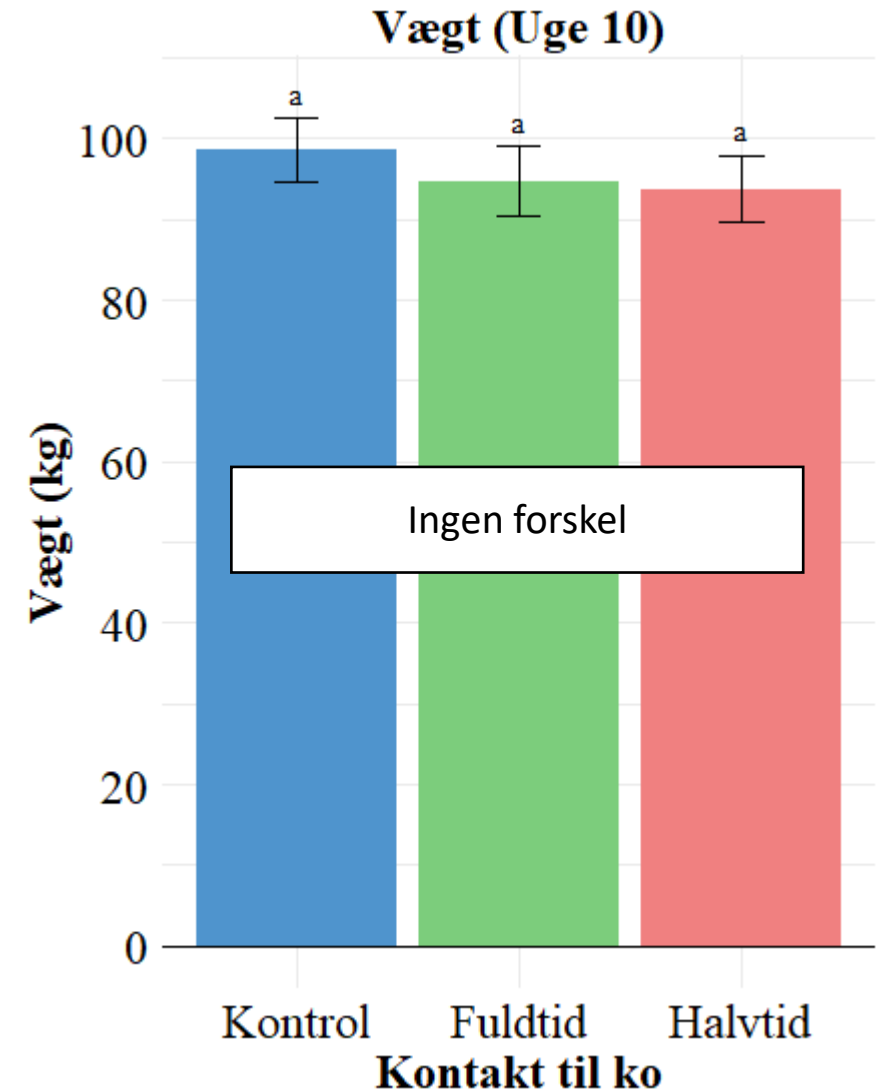
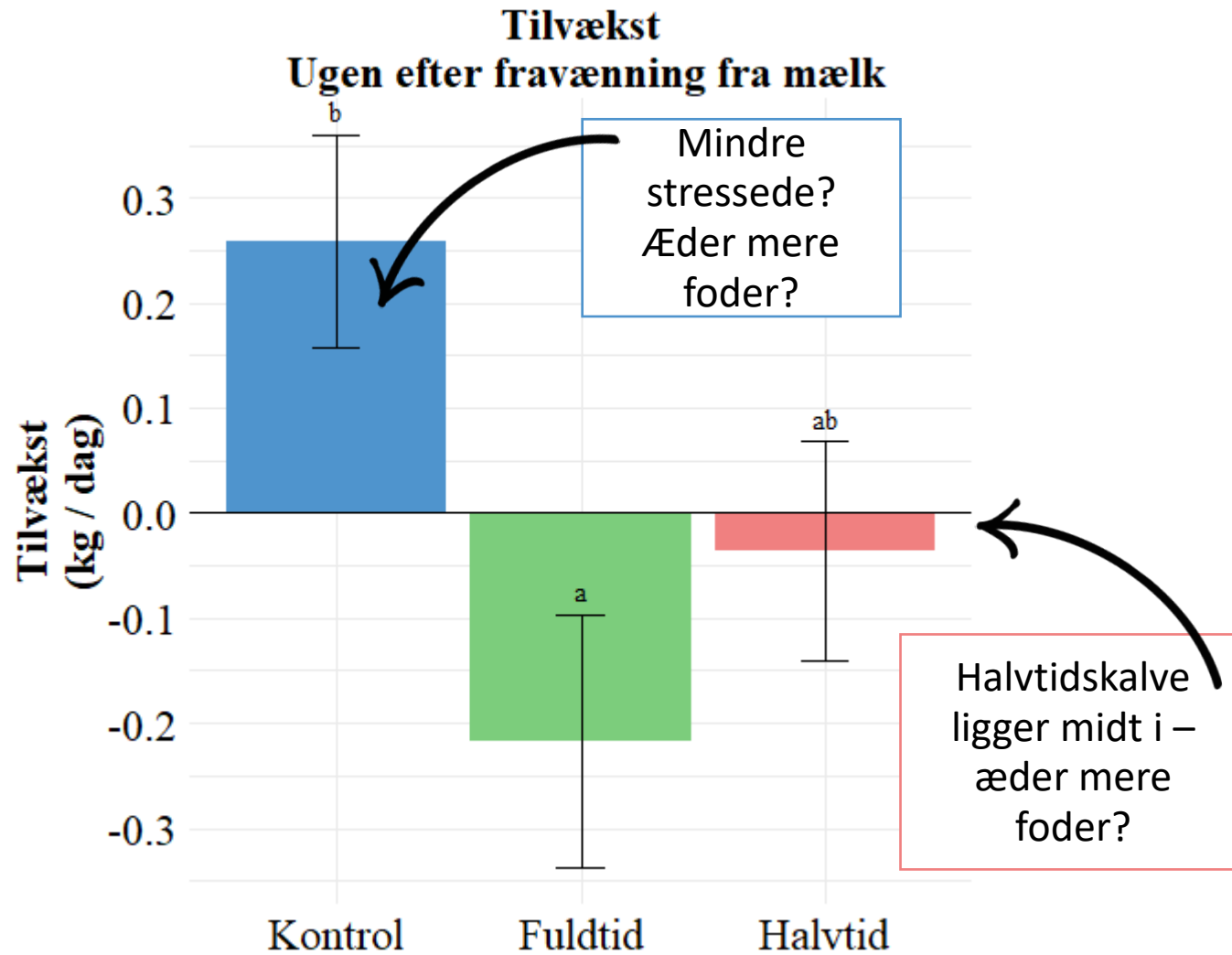
Effekt af fravænnings- og separationsstrategi (Samtidig eller To-trin)



Brølen ved fravænnning & separation



RESULTATER: TILVÆKST



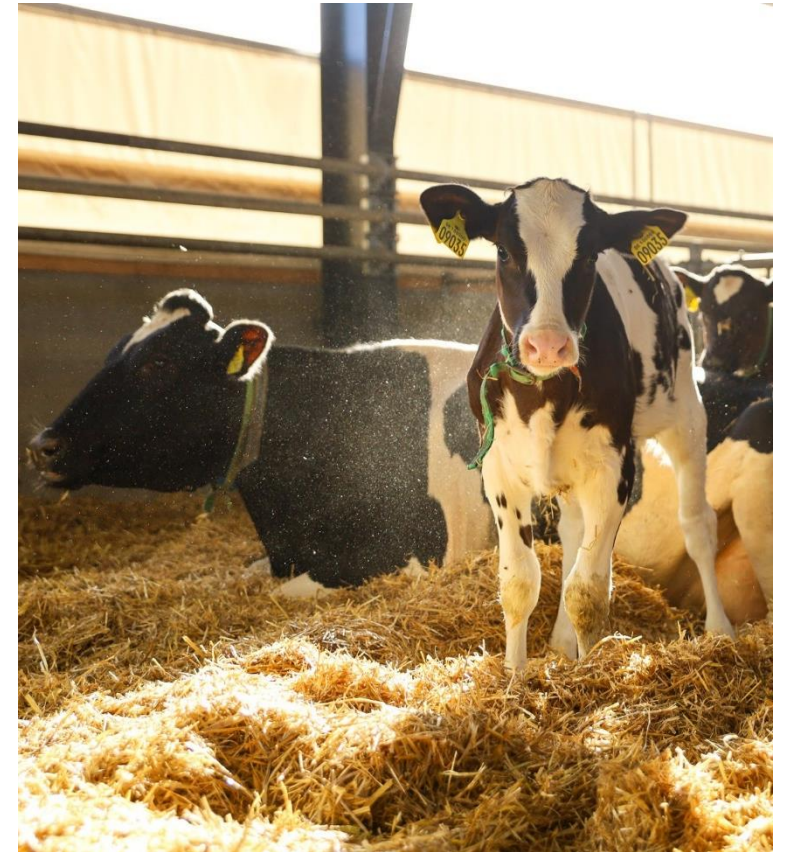
OPSAMLING PÅ FRAVÆNNING

- Halvtidskontakt reducerede ikke brølen ved fravænning og separation
- To-trins fravænning og separation reducerede brølen

PERSPEKTIVER OG TANKER FREMAD

Selv med to-trins fravænning og separation, stadig et væsentlig knæk på tilvæksten

- Fravænne/separere senere
- Forlænget "fence-line" weaning.



PERSPEKTIVER OG TANKER FREMAD

Halvtidskontakt er ikke ”den perfekte løsning”, men muliggør i mange situationer ko-kalv samvær

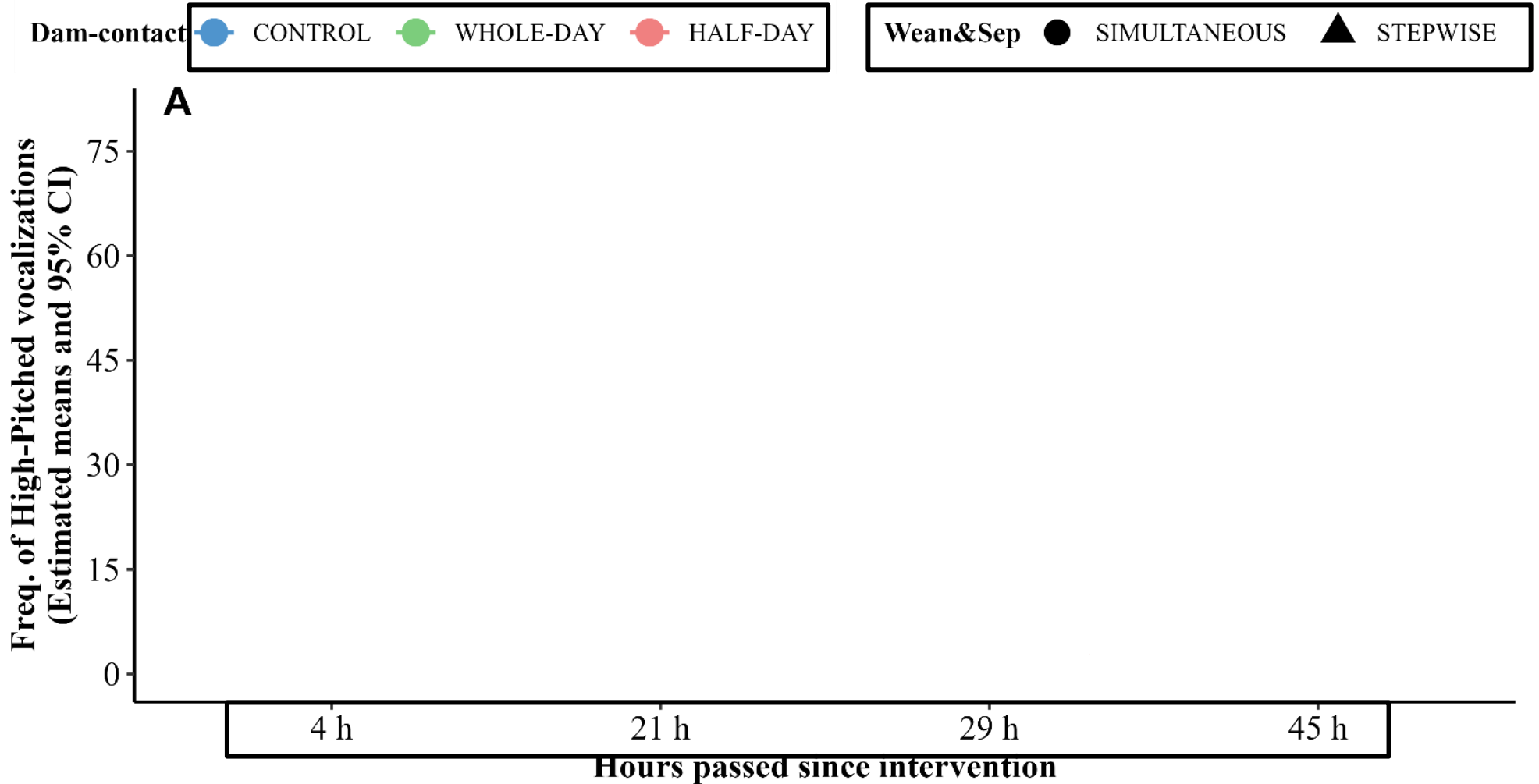
- Overvej daglig separationsvarighed
- Overvej om det skal være fra dag 1?
- Øget håndtering og ”sundhedstjek”

EXTRAS



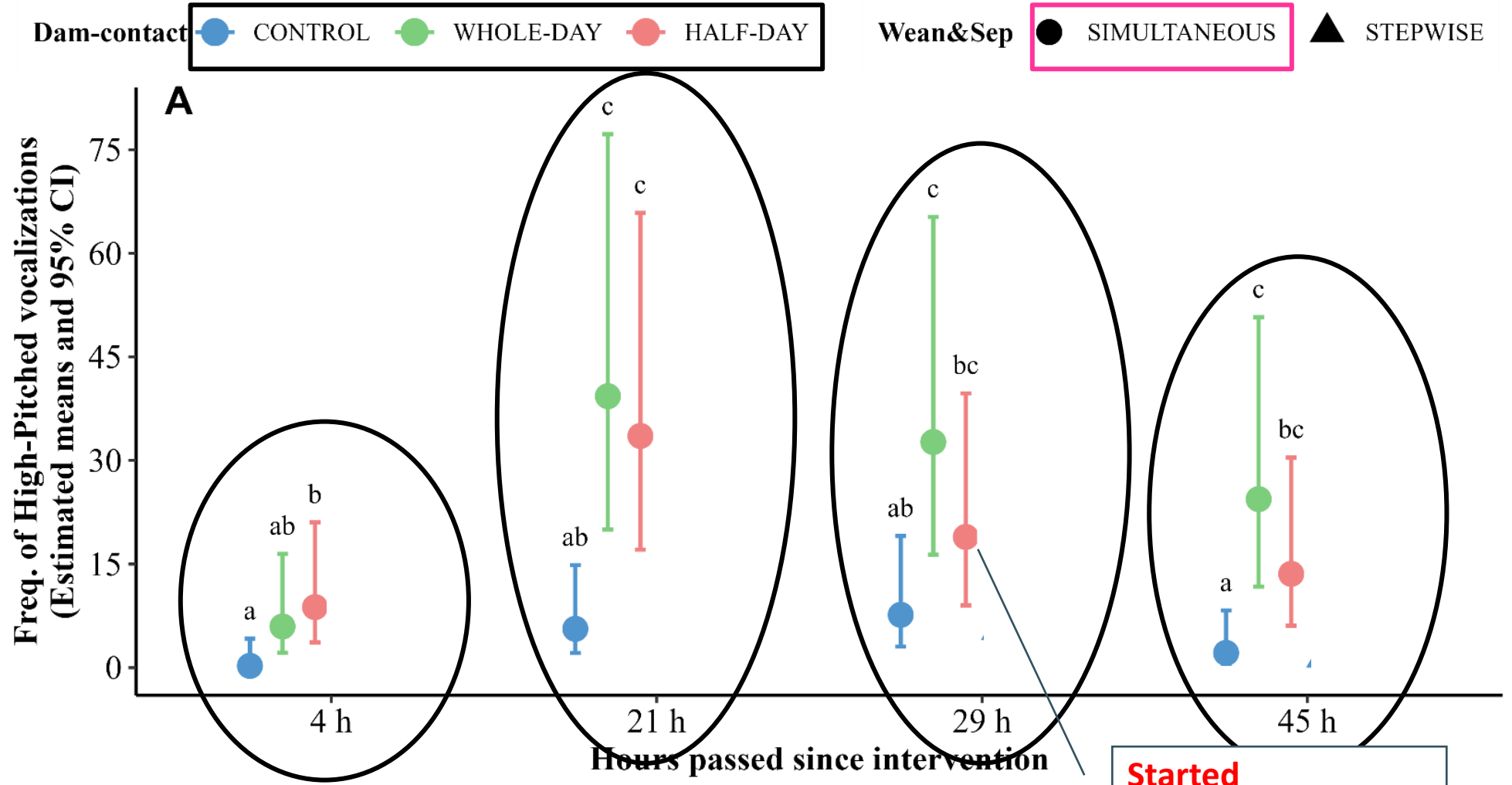
RESULTS: WEANING AND SEPARATION

No. of High-pitched vocalisations/30 min



RESULTS: WEANING AND SEPARATION

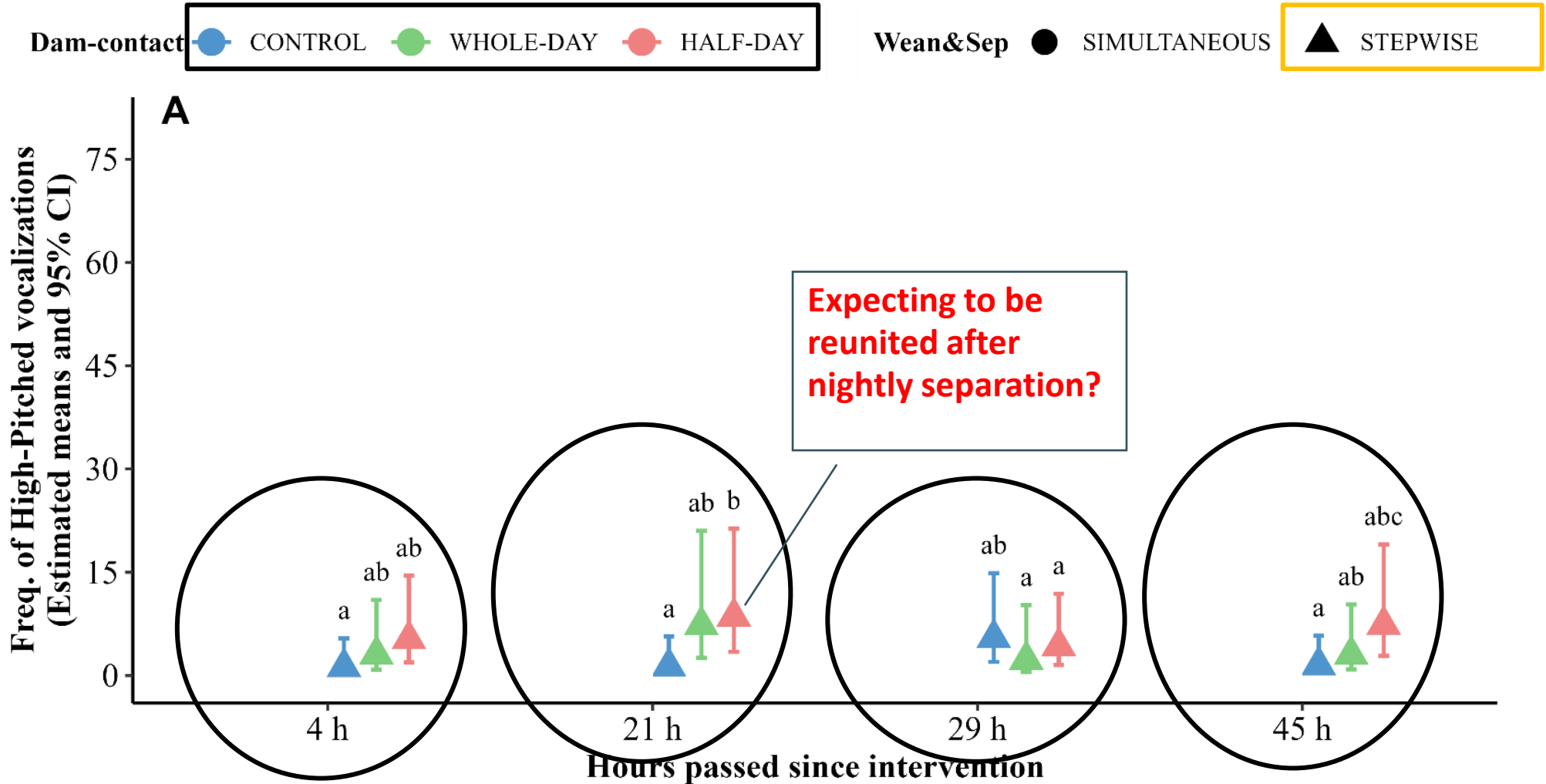
No. of High-pitched vocalisations/30 min



Started compensating with more solids?

RESULTS: WEANING AND SEPARATION

No. of High-pitched vocalisations/30 min



RESULTS: WEANING AND SEPARATION

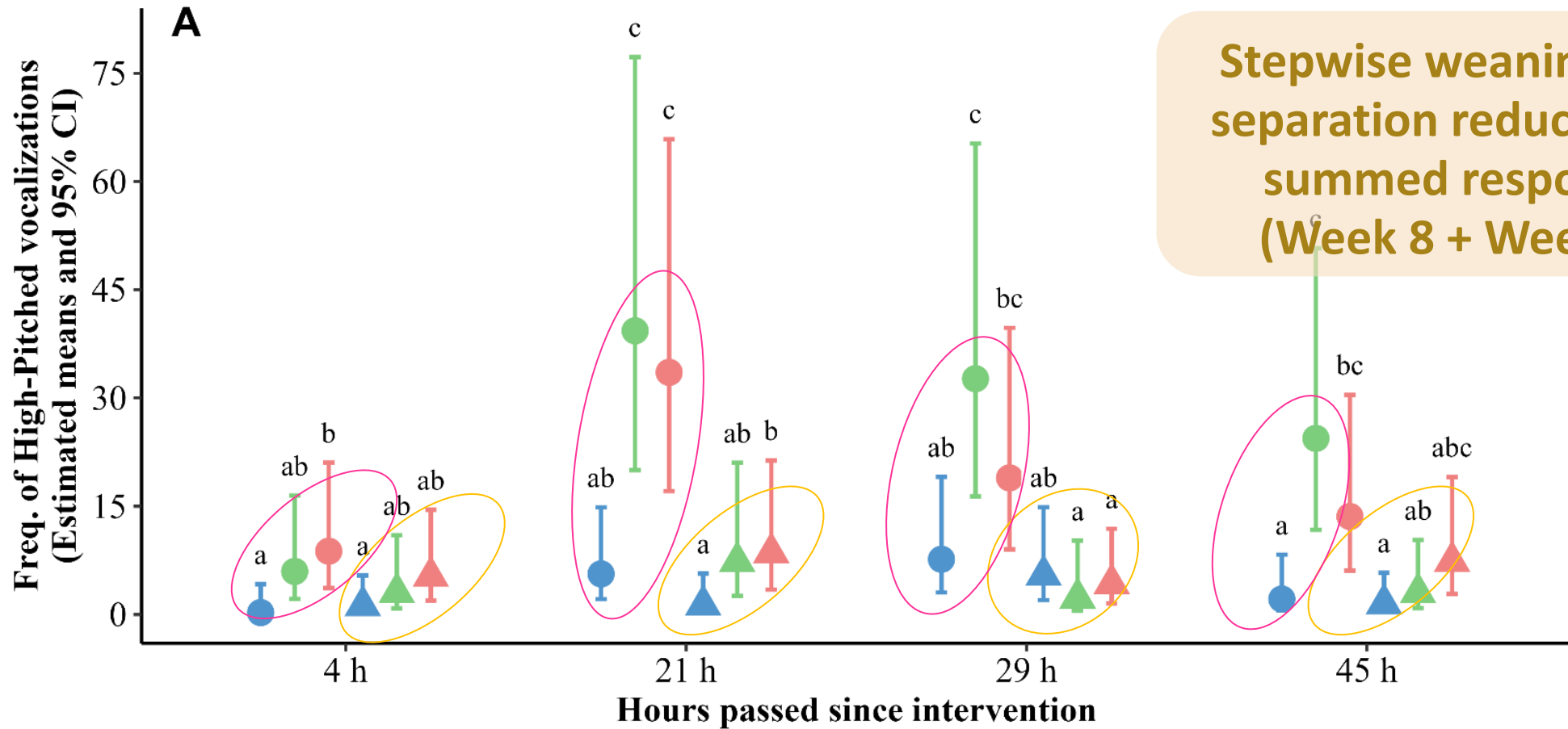
No. of High-pitched vocalisations/30 min

Dam-contact ● CONTROL ● WHOLE-DAY ● HALF-DAY

Wean&Sep

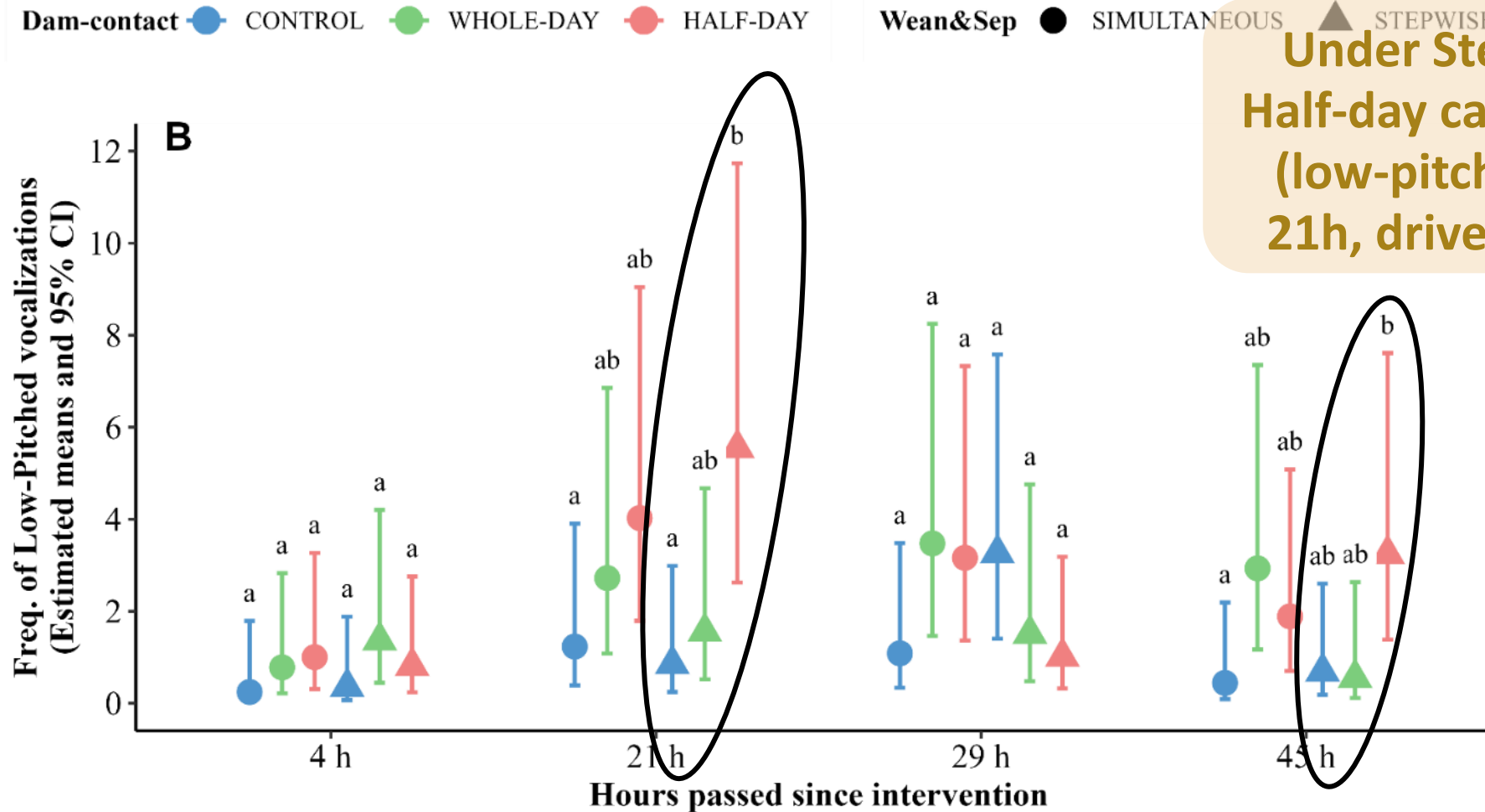
● SIMULTANEOUS

▲ STEPWISE



RESULTS: WEANING AND SEPARATION

No. of Low-pitched vocalisations/30 min



Under Stepwise only,
Half-day calves vocalised
(low-pitched) more at
21h, driven by week 8.

COMPARING WELFARE

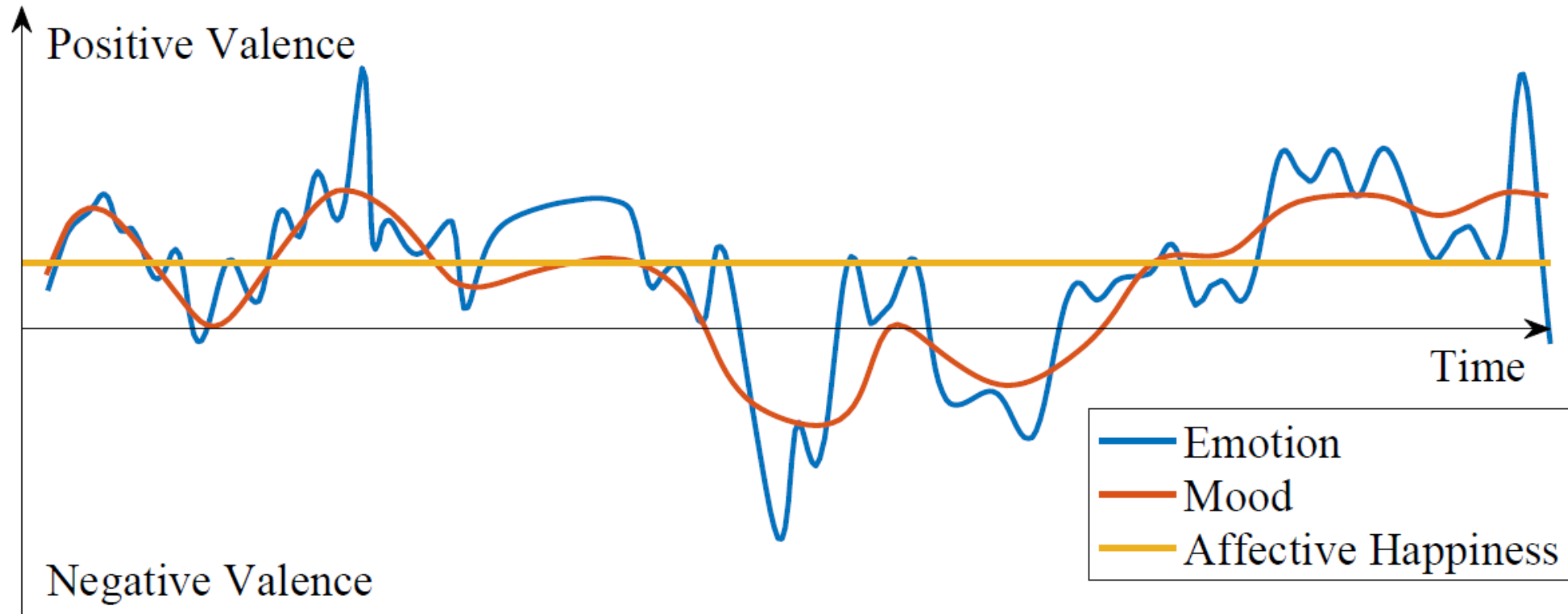


Figure 10.1: The framework of Animal Happiness. The figure is adapted from Webb et al. (2019).

COMPARING WELFARE

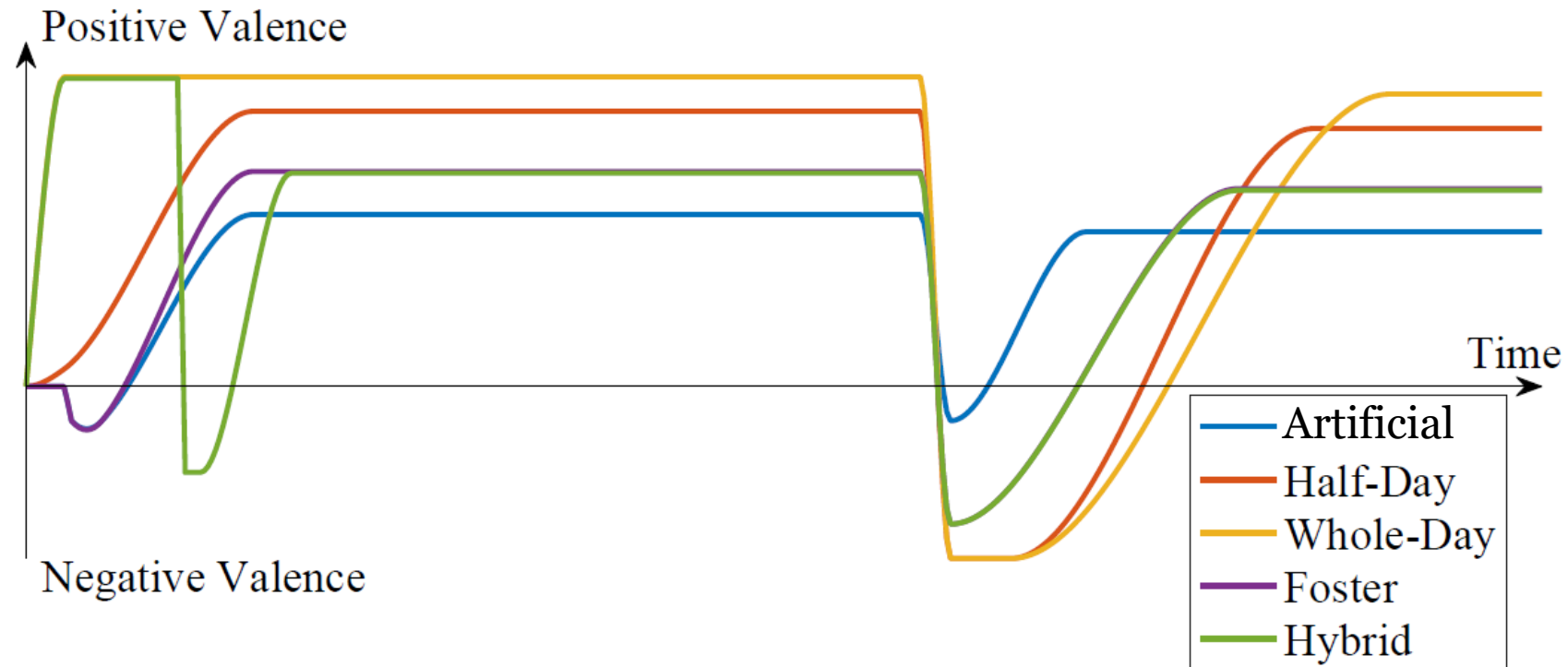
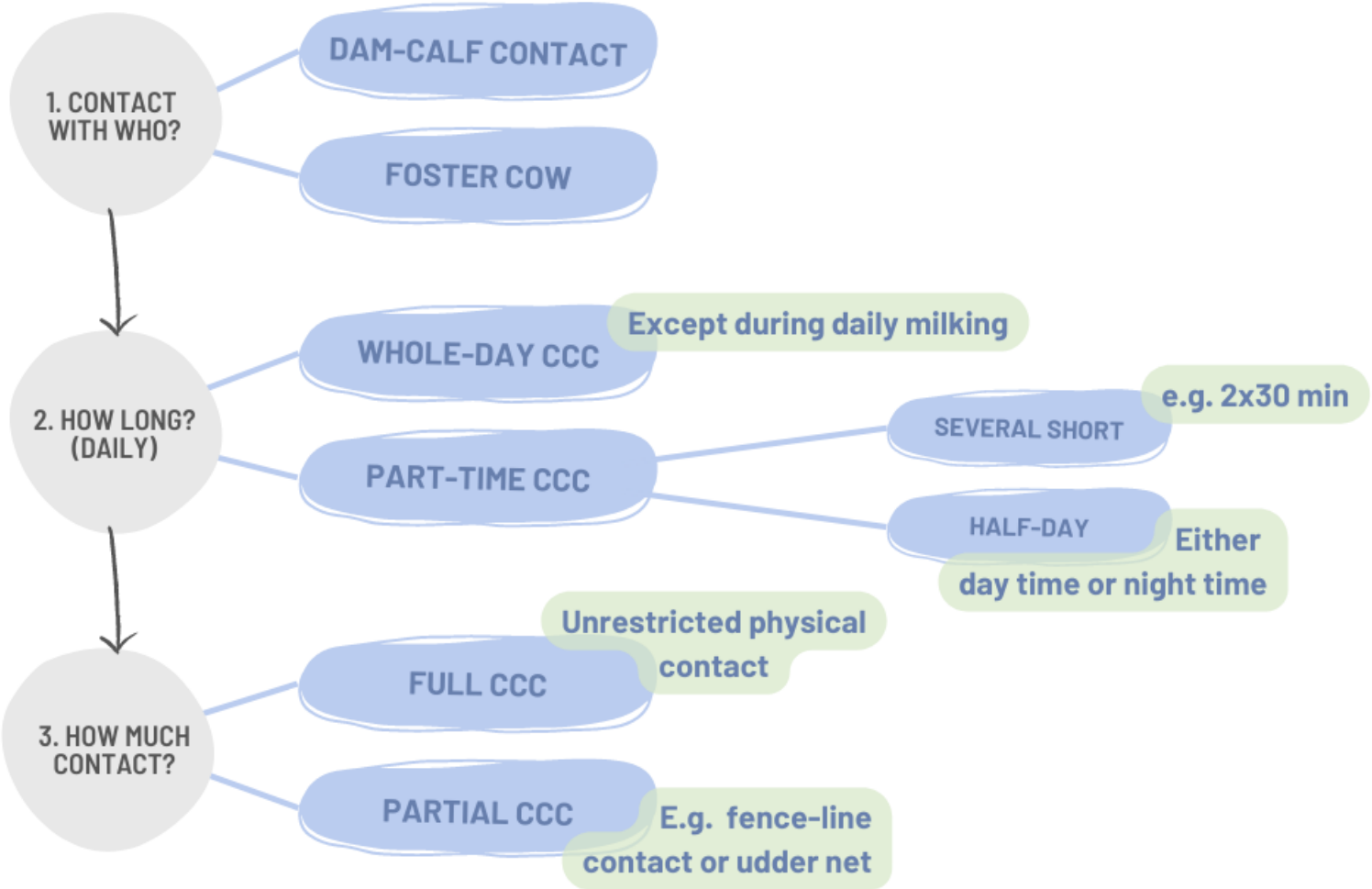
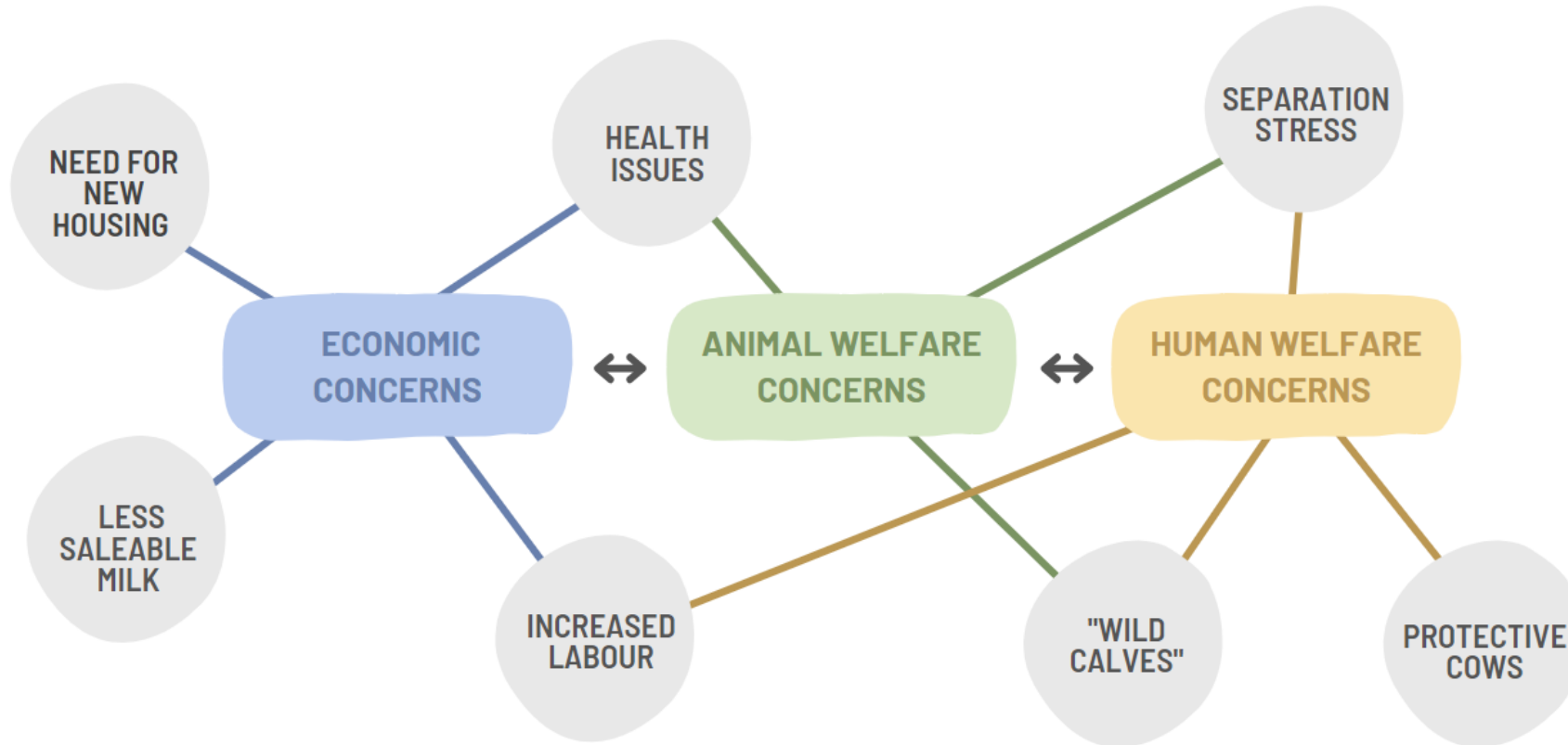


Figure 10.2: Hypothetical mood lines as seen from the calf during the pre-weaning and immediate post-weaning period in different calf-rearing systems.

TERMINOLOGY

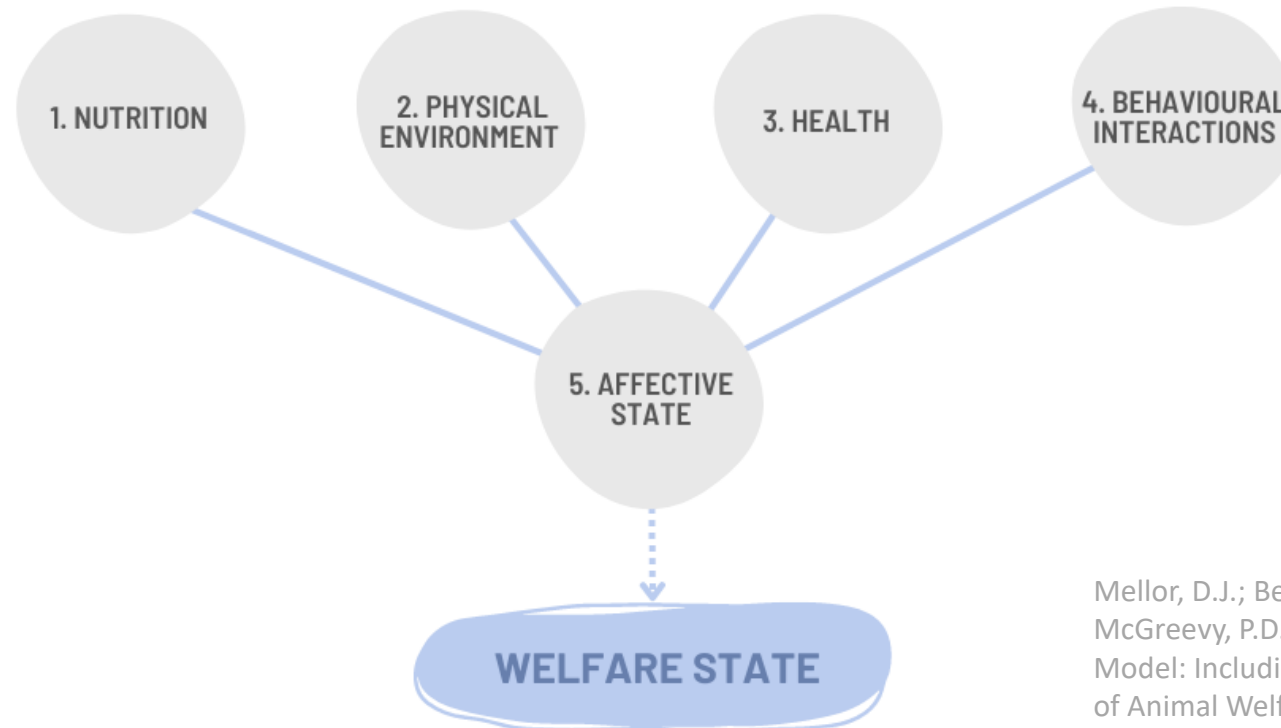


MAIN BARRIERS



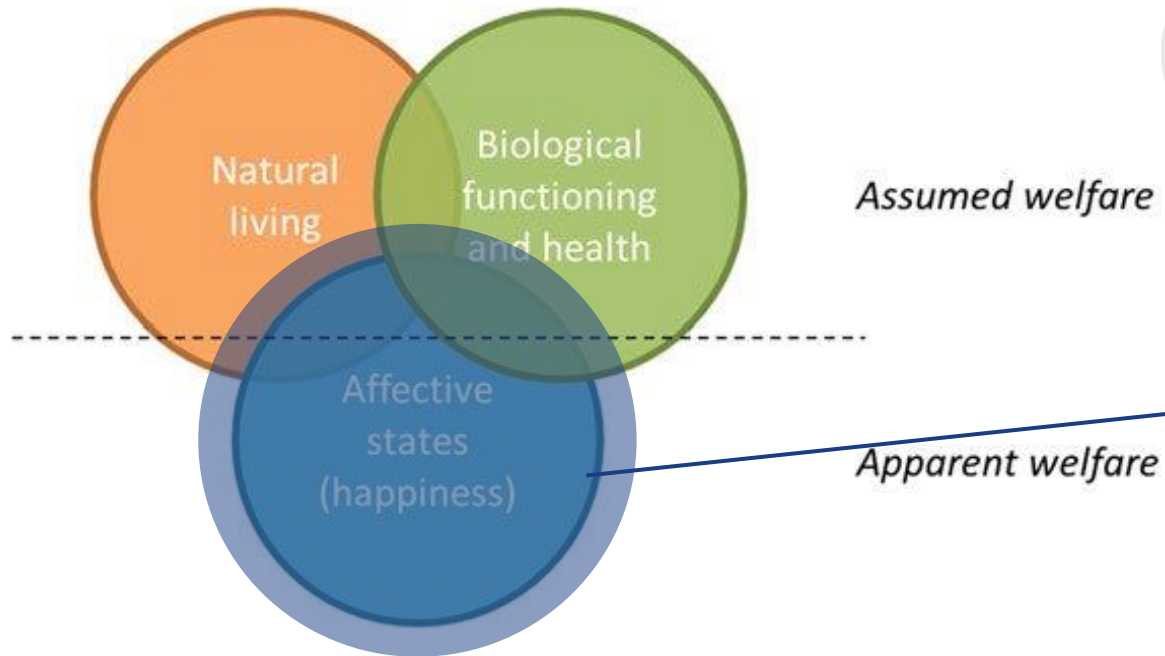
MELLORS 2020 DOMAINS MODEL

THE 2020 FIVE DOMAINS MODEL



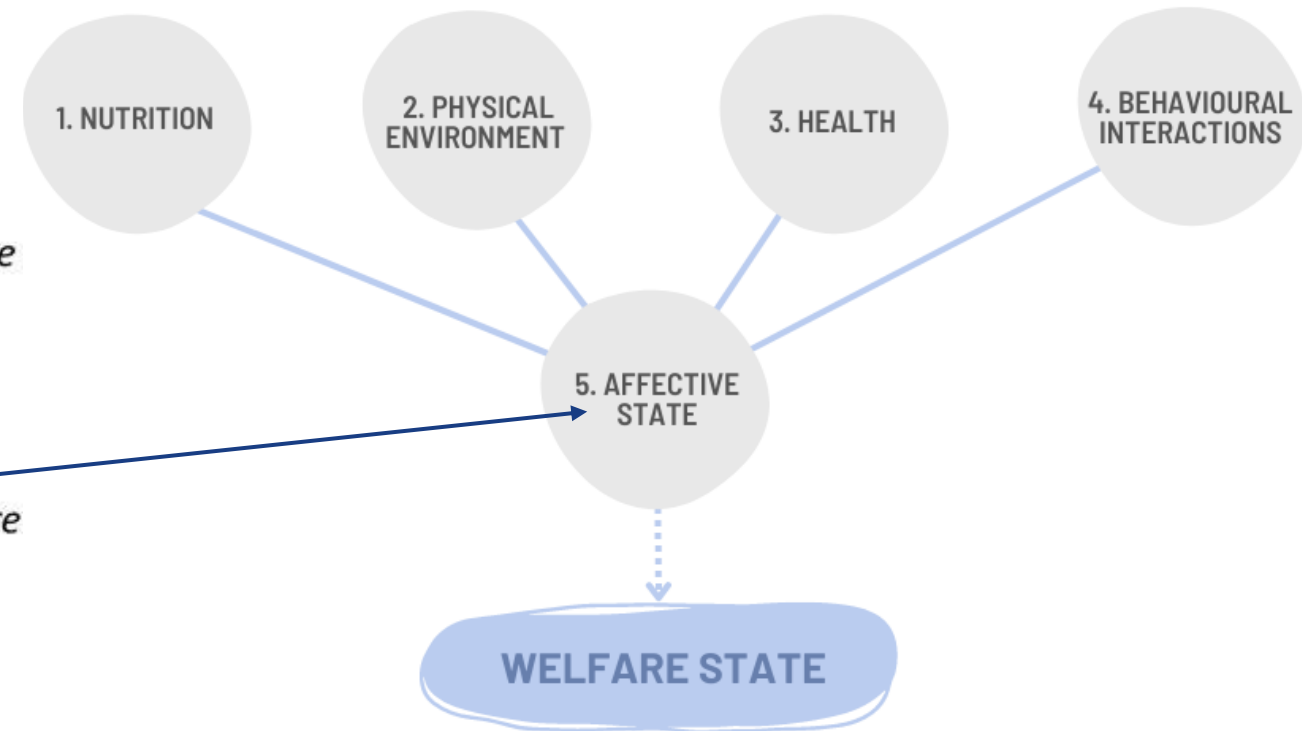
Mellor, D.J.; Beausoleil, N.J.; Littlewood, K.E.; McLean, A.N.; McGreevy, P.D.; Jones, B.; Wilkins, C. The 2020 Five Domains Model: Including Human–Animal Interactions in Assessments of Animal Welfare. *Animals* 2020, *10*, 1870. <https://doi.org/10.3390/ani10101870>

"FRASER ANIMAL WELFARE MODEL"



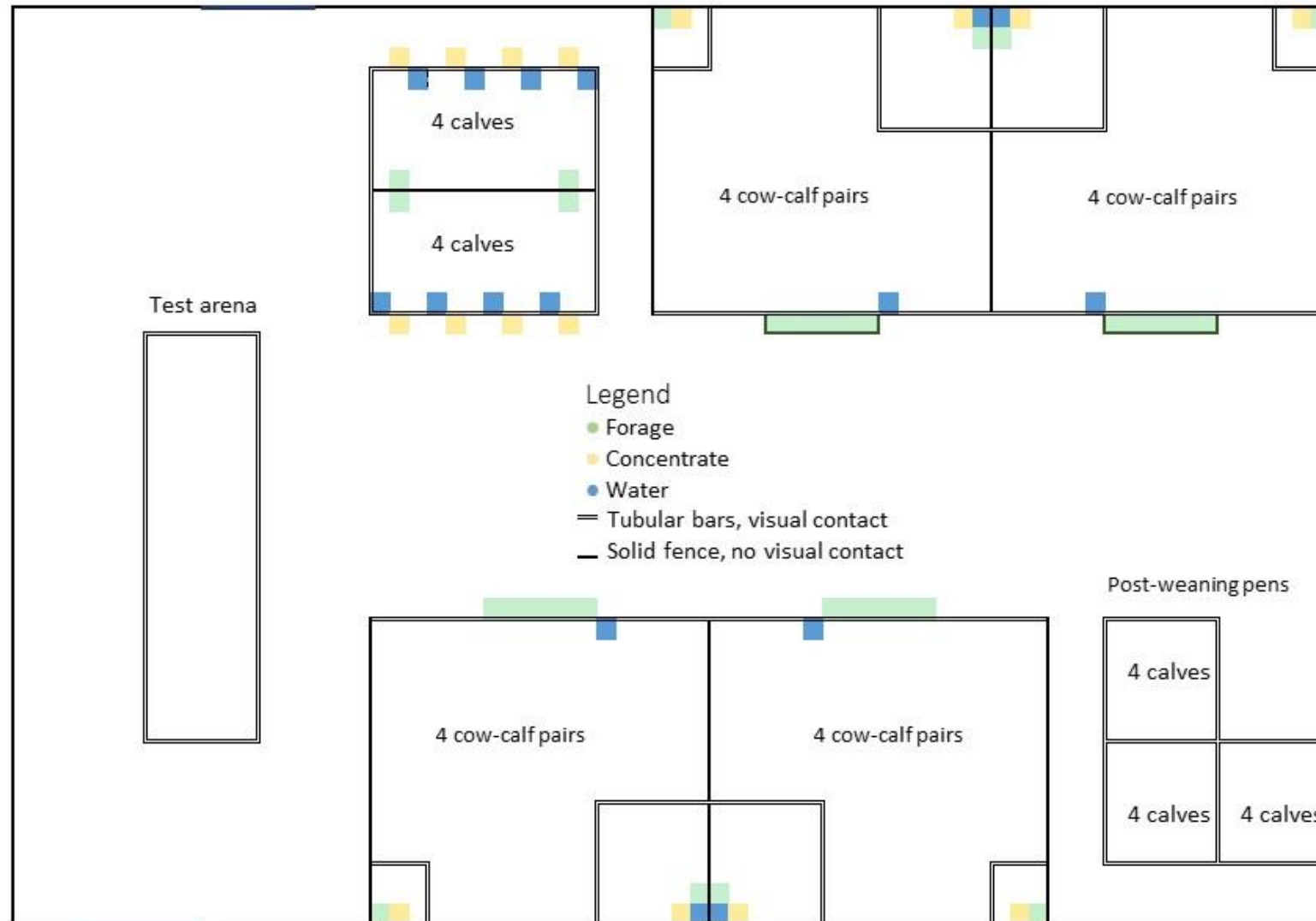
Source: Webb, L. & Veenhoven, Ruut & Harfeld, Jes & Jensen, Margit. (2018). What is animal happiness?. *Annals of the New York Academy of Sciences*. 1438. 10.1111/nyas.13983.

THE 2020 FIVE DOMAINS MODEL



Mellor, D.J.; Beausoleil, N.J.; Littlewood, K.E.; McLean, A.N.; McGreevy, P.D.; Jones, B.; Wilkins, C. The 2020 Five Domains Model: Including Human–Animal Interactions in Assessments of Animal Welfare. *Animals* 2020, 10, 1870. <https://doi.org/10.3390/ani10101870>

EXPERIMENTAL DESIGN / LAYOUT OF BARN



Half-day night pen



Emma Hvidtfeldt Jensen

PARITY

Multiparous groomed their calves more

Multiparous half-day vocalised more in night pen

Multiparous had calves that were heavier at week 8 and higher ADG from birth to week 8

WEEK

Fewer suckled on alien cows in week 7 than 3.

Practically only Half-day suckled their dam from behind in week 7

Suckling bouts – more in week 3 than 7 for whole-day

Less grooming (overall) in week 7 – driven by (tendency) drop for Half-day

Decrease in resting (0.5h) and increase in eating (19->28 min)

Increase in time spent close to other calf (from ~40-~55 % of scans)

Decrease in creep use from 45 -> 34

CROSS-SUCKING

A total of 5 calves showed cross-sucking behavior (Half-day: 3 and Whole-day: 2). For 2 of the Half-day calves, cross-sucking was observed in both weeks 3 and 7. The duration of cross-sucking for calves who performed the behavior ranged from 6.5 s/24 h to 253 s/24 h.

SEX

Bulls heavier

Heifers calling more during HAR

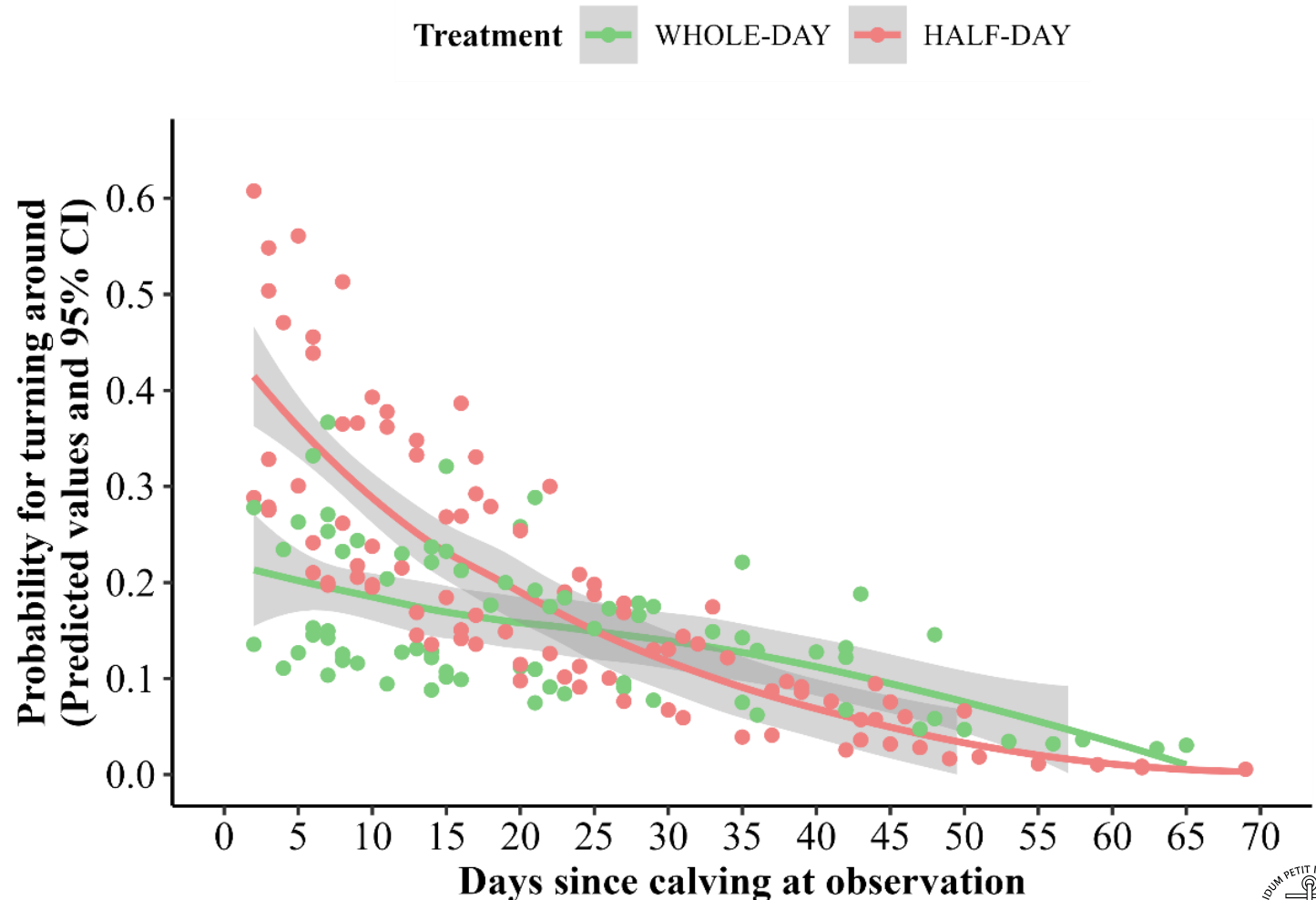
RESULTS – STRESS FROM REPEATED SEPARATION..

Behaviour when cows return

Willingness to be separated for milking

“habituation”

Barn personal felt like they were stressed next morning before milking and reuniting



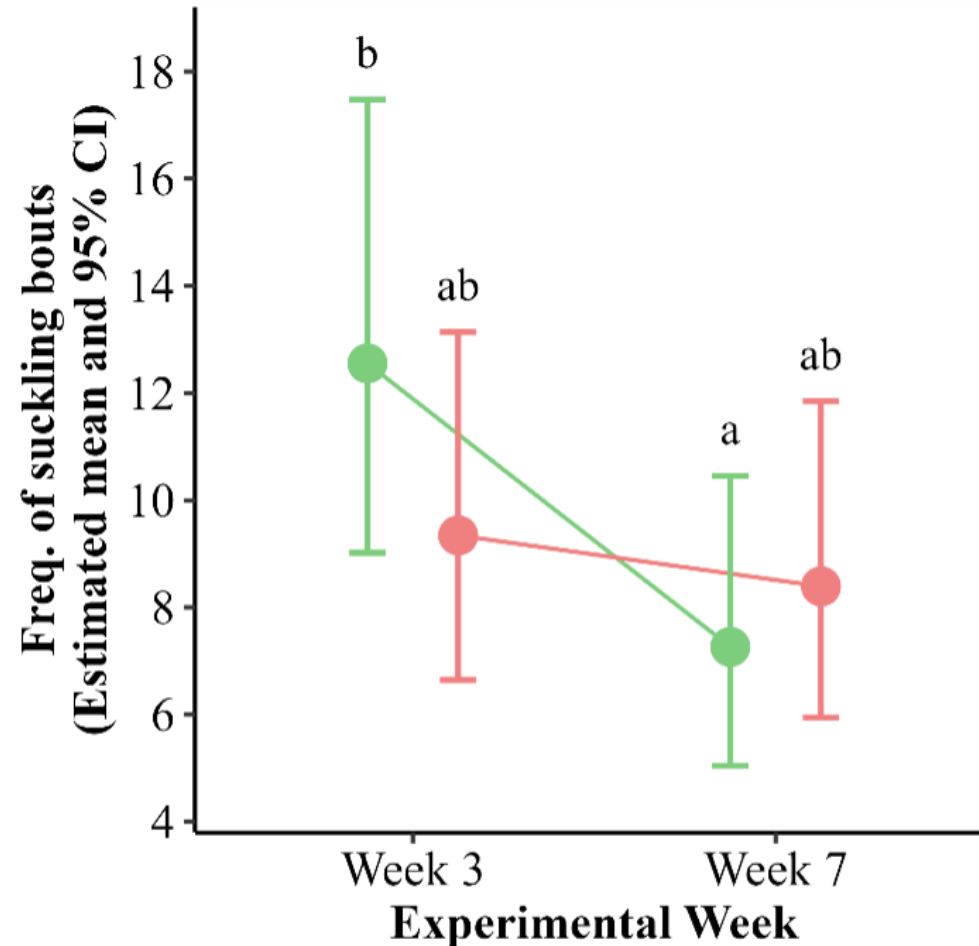
RESULTS: DAM-CALF INTERACTIONS

Number of suckling bouts

Treatment ● WHOLE-DAY ● HALF-DAY

When free to choose, starts out with many bouts and then fewer – BUT same daily suckling duration! So fewer but longer bouts.

When only access during day, stable level.



RESULTS – DAM-INDEPENDENT BEHAVIOUR

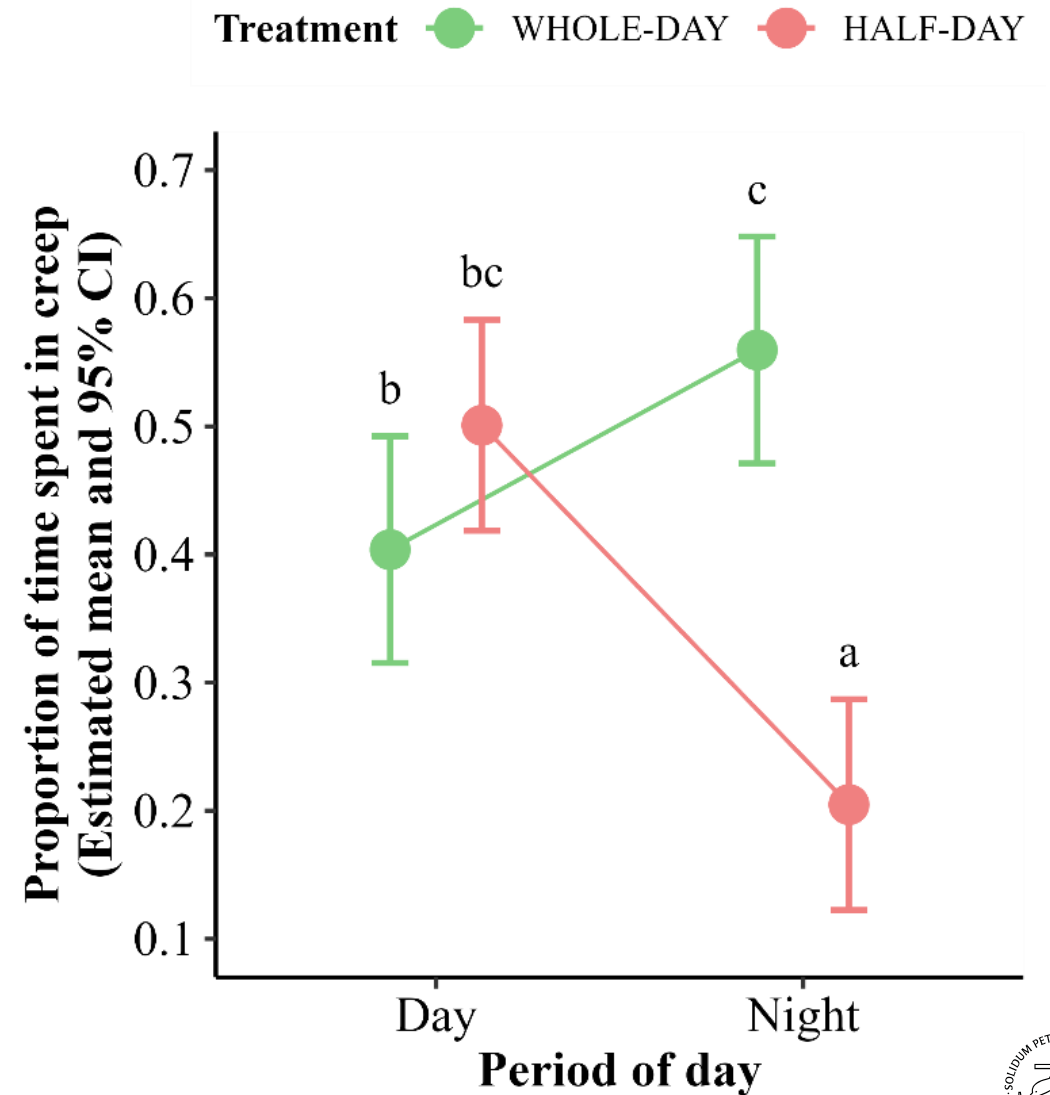
Creep use

Presence of the cow

During the day no difference, but during the night half-day slept in the main pen while whole-day used the creep to sleep in

Decreasing creep use in week 7, but still 35%

Mostly used for lying down.



RESULTS: DAM-CALF INTERACTIONS

Time spent close together

Average of Week 3 and Week 7

Whole-day

6h / 23h

~50/50 day and night.

Half-day

3h / 10h



Maja Bertelsen

Research Question 3

Human-Animal Relationship (HAR)

Hypothesis 1

Half-day contact will result in **improved HAR** compared to whole-day contact, while **control** calves have the **best HAR**.

Research Question 3

Human-Animal Relationship (HAR)

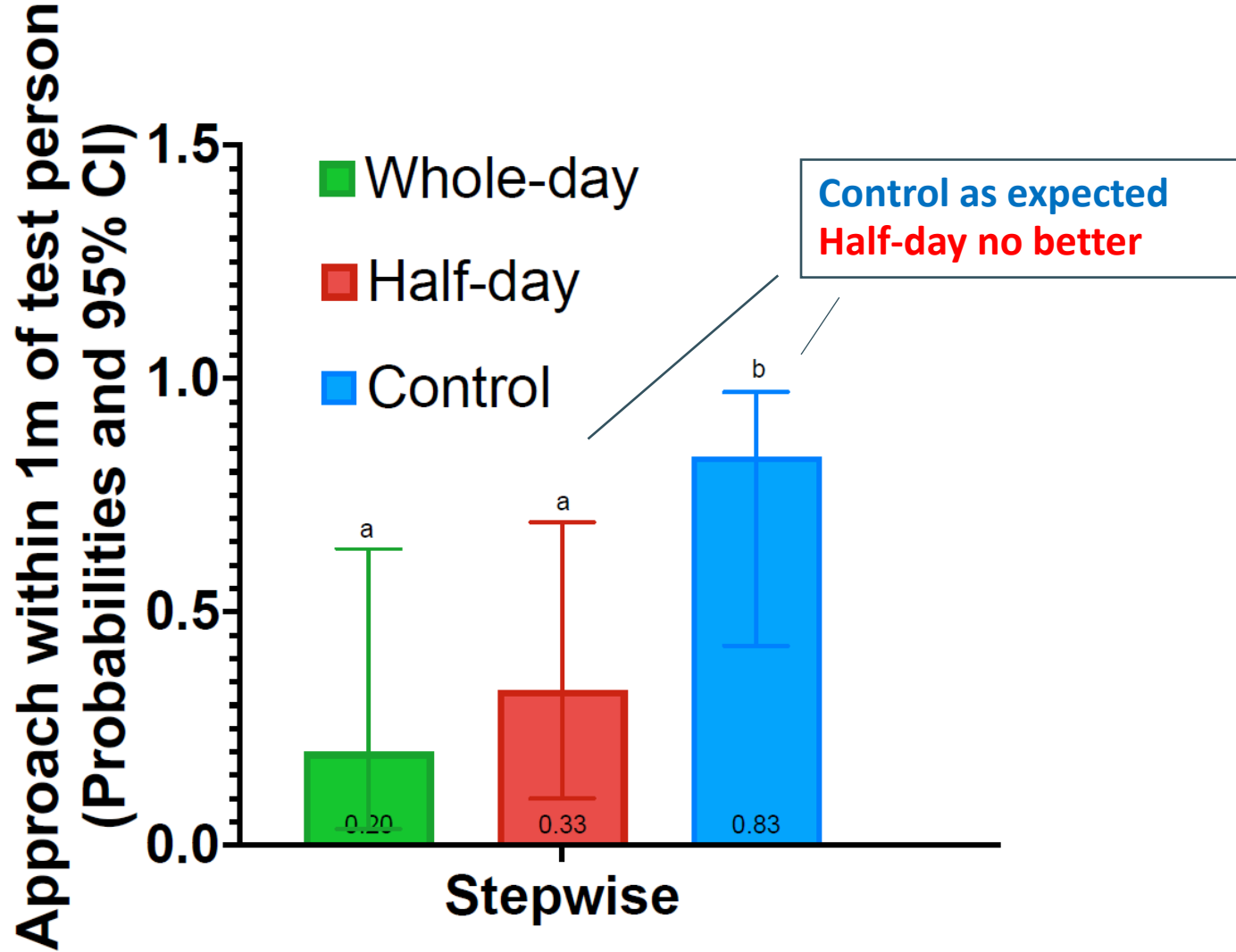
Hypothesis 2 (Secondary)

Simultaneously weaned and separated **control** calves will show a **relatively** more **positive HAR** while **dam-reared** calves will show an **unchanged HAR**



RESULTS: HUMAN-ANIMAL RELATIONSHIP

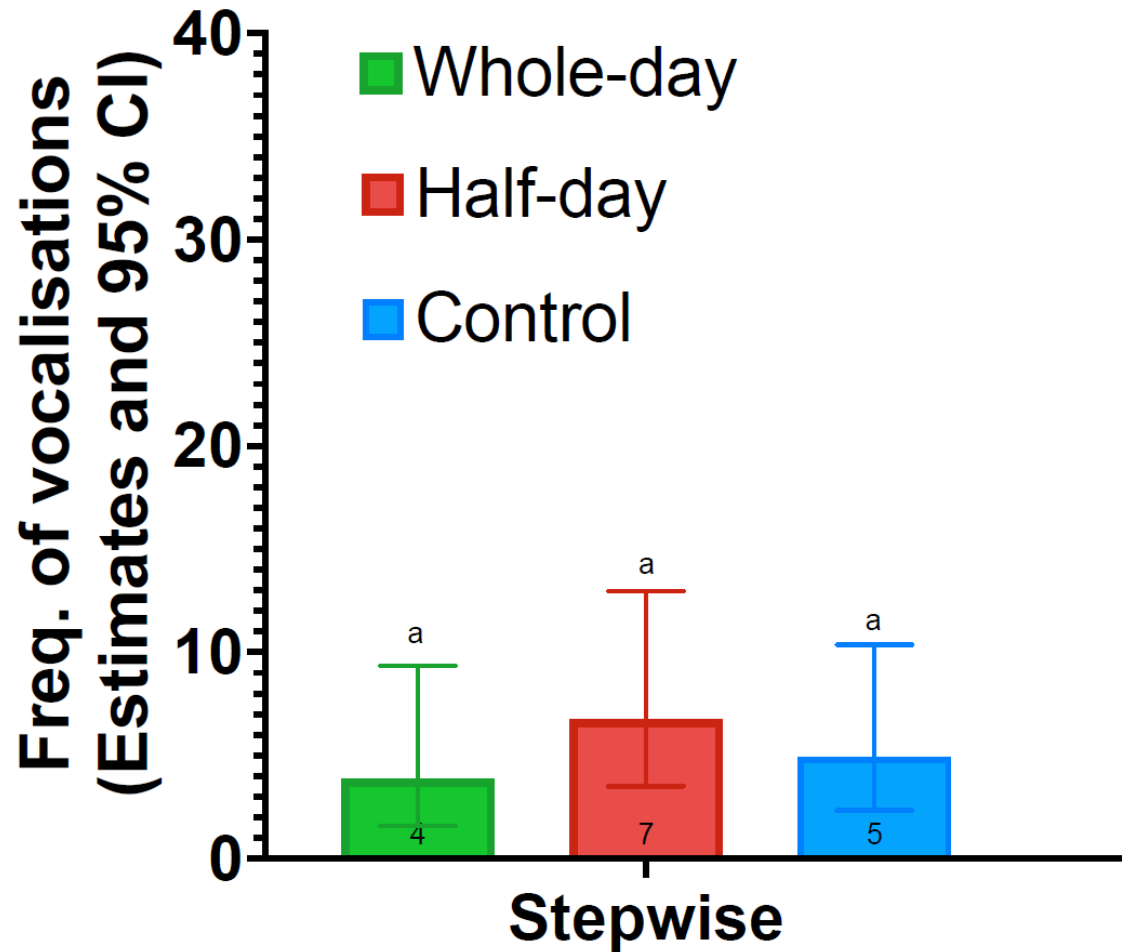
Probability of getting close to the test person



Founded by
aning and
aration stress?

RESULTS: HUMAN-ANIMAL RELATIONSHIP

No. of vocalisations during arena test



Affected by weaning and separation – but does not show for Control?