



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Rethinking the Maternity Pen: What the science tells us

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The Problem with Transition



- ✓ 3 wk before to 3 wk after calving
- ✓ High risk of disease
- ✓ Impact on the industry:
 - *Lower milk production*
 - *Higher involuntary culling*
 - *Lower reproductive efficiency*
 - *Compromised welfare*

The Problem with Transition



- ✓ Decades of research and advancements
- ✓ Gap: how to best accommodate her

How do cows behave when they are housed in natural environments?



- ✓ Free-ranging beef cows (Lidfors et al., 1994)
- ✓ Free-ranging dairy cows (Lidfors et al., 1994)
- ✓ Caribou (Rettie and Messier, 2001)
- ✓ Moose (Bowyer et al., 1999)

What about commercial herds?





How should we manage her?

72 Holstein dairy cows

- 22 Primiparous and 50 multiparous

2 Conditions:

- Single-housed (n = 34)
- Pair-housed (n = 38)

Exclusion criteria:

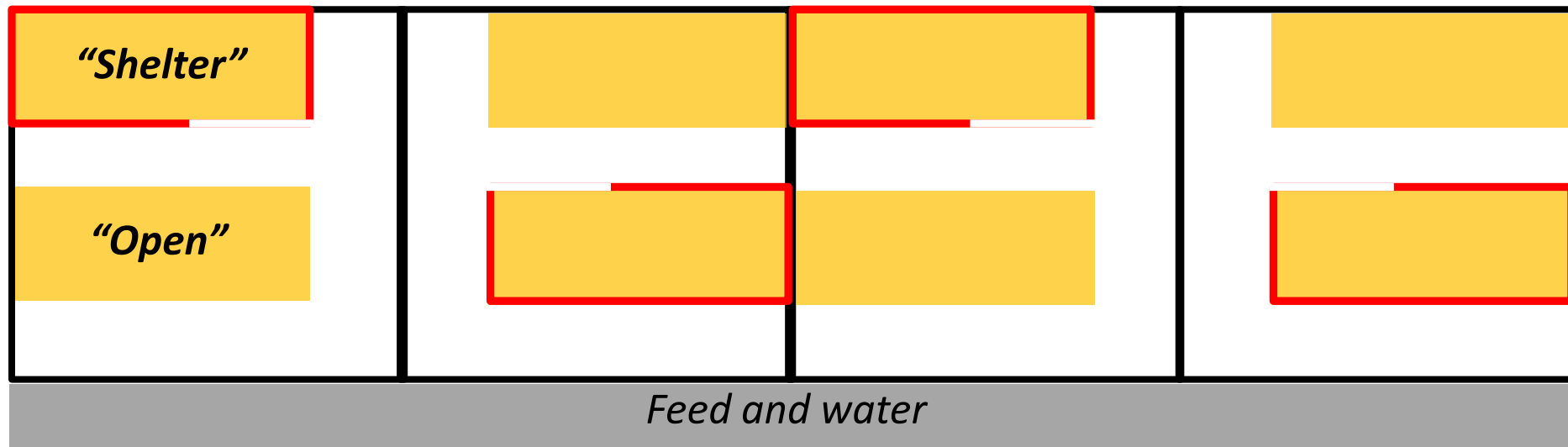
- Cows with mal-positioned calves or very difficult labors were not included

“Preference Test”



“Preference Test”

4 pens:



Behavioral data collection

1) Location at calving



Results

Behavioral data collection

1) Location before calving



Behavioral data collection

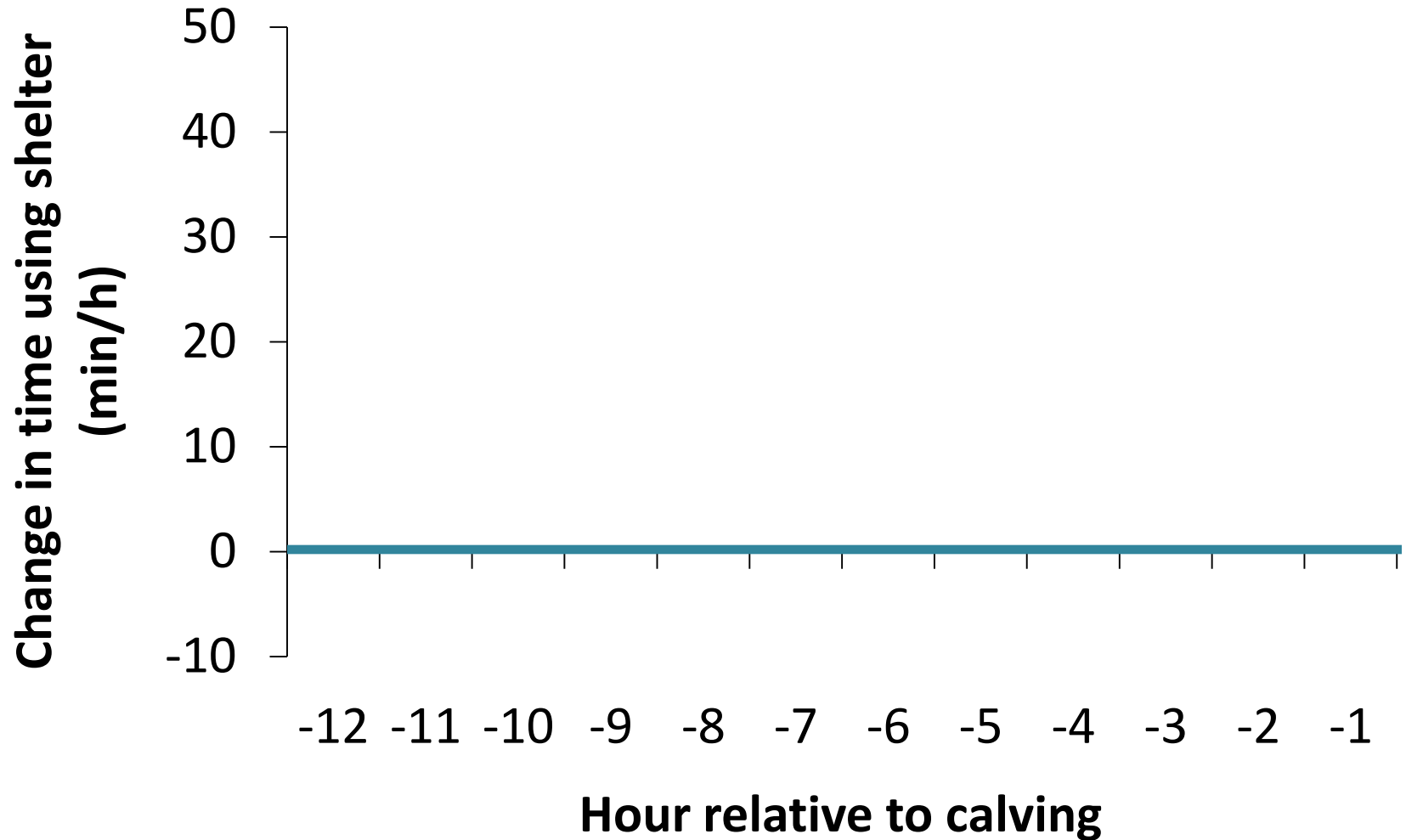
3) Distance from partner before calving



Behavioral data collection



If there was no difference...



Results

Practical solutions: Denmark



Practical solutions: Denmark

Covered (n = 18 cows)



Uncovered (n = 16 cows)





“Corner”

A black and white photograph of a cow in a pen. The cow is dark-colored with a white patch on its side and is positioned in the upper left corner of the frame. A dashed white line runs horizontally across the middle of the image, separating the 'Corner' region from the 'Window' region. The pen is enclosed by a metal fence, and there is a building with a ramp in the background.

“Window”

Results

What about after calving?



Methodology

“Healthy” (n = 9)

**No rectal temperature
> 39.0 within 3 d of calving**

and

**No clinical signs of metritis,
mastitis or ketosis within 9 d
of calving**

“Ill” (n = 8)

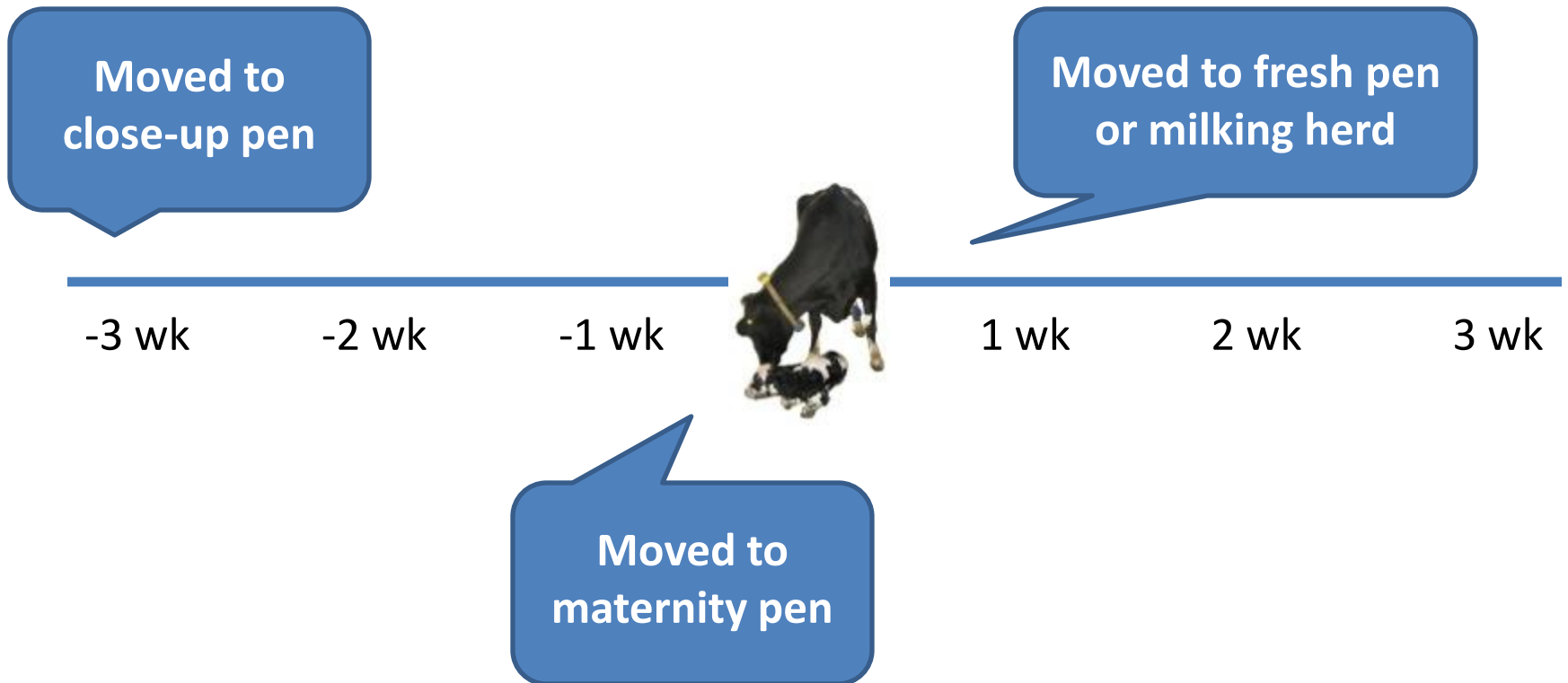
**Rectal temperature > 39.0 for
at least 2 consecutive milkings
within 3 d of calving**

and

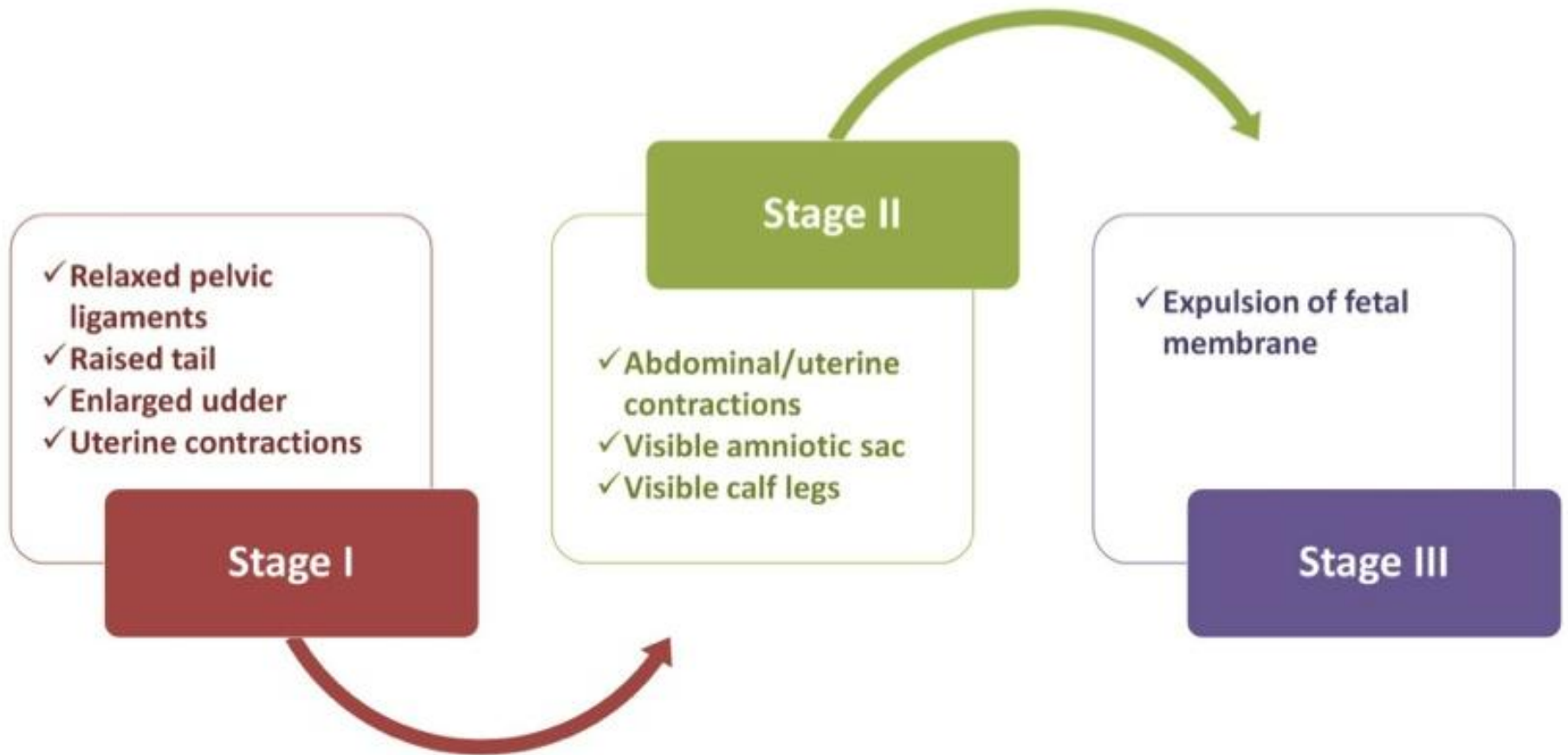
**Clinical signs of metritis (n = 3)
or mastitis (n = 5) within 3 d of
calving**

Results

Transition movements



Behavioral and physical signs of the three stages of labor



Methodology

2 Treatments:

- Moved before signs of labor
- Moved during labor

Measurements:

- Length of stage II labor
- Standing behavior & length of abdominal contractions in the 1 h before calving

3 Categories:

1) Moved before signs of labor (n=16)

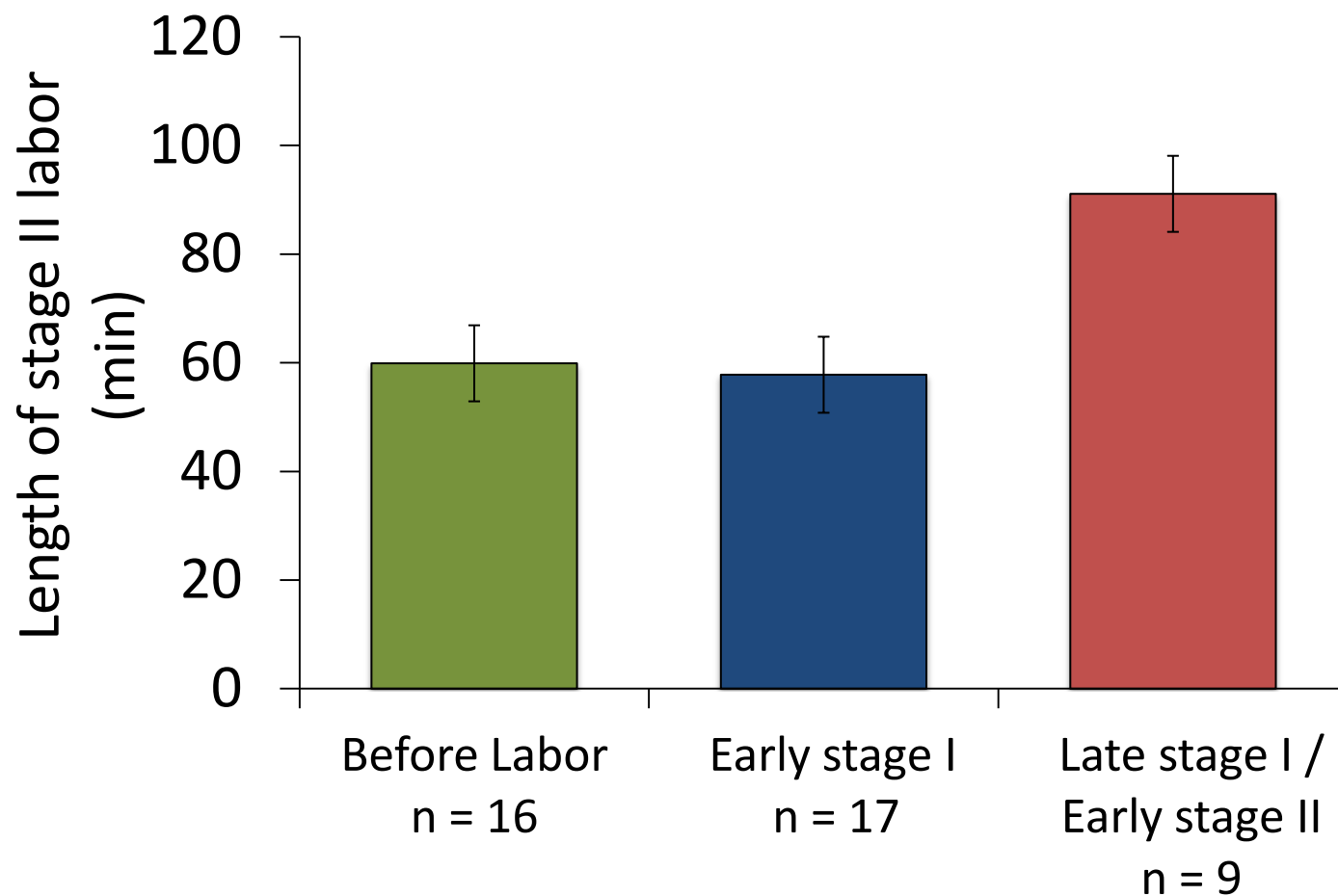
2) Moved during “early stage I” labor (n=17)

- ✓ *Raised tail*
- ✓ *Relaxed pelvic ligaments*
- ✓ *Suddenly enlarged udder*
- ✓ *Moved within 24h of calving*

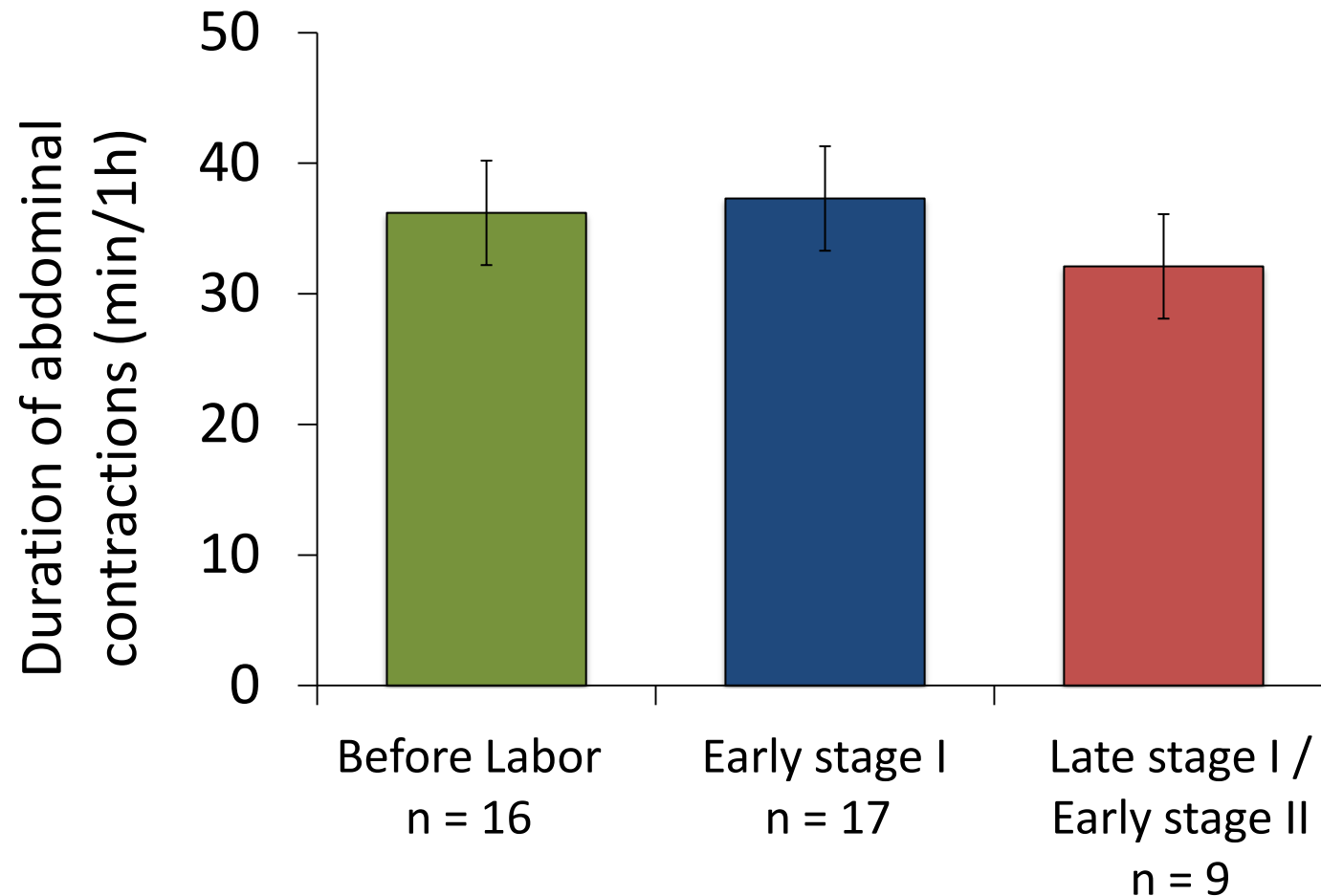
3) Moved during “late stage I/early stage II” labor (n=9)

- ✓ *Abdominal contractions*
- ✓ *Thick, bloody mucous*
- ✓ *Moved within 4h of calving*

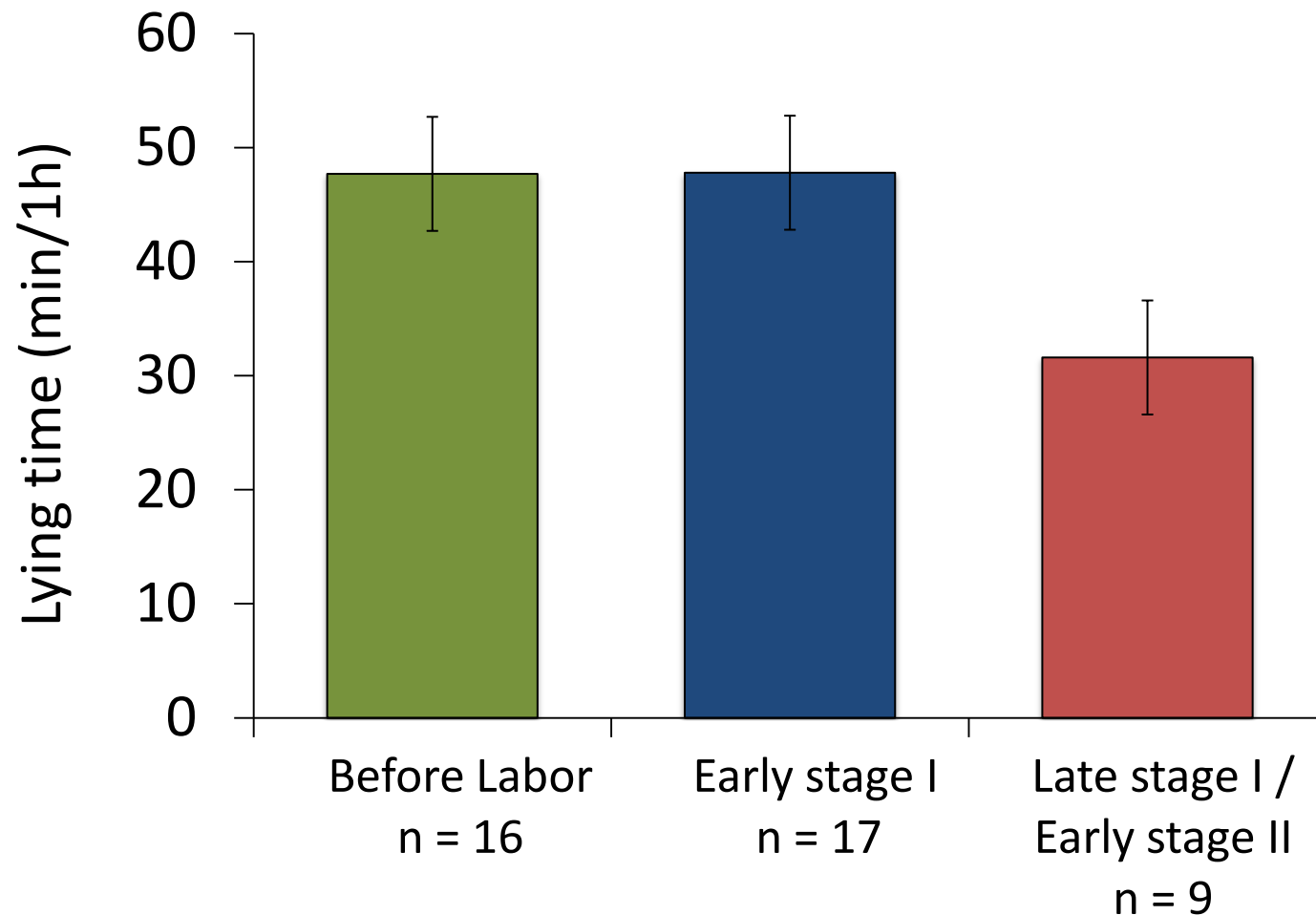
Cows moved during the transition from stage I to II had the longest stage II labor



...but showed no difference in the length of contractions



These cows also spent less time recumbent just before calving



Take home messages

- ✓ Given the choice, indoor-housed cows prefer to calve in a secluded area
- ✓ Cows used the shelter and distance themselves from other cows a few hours before calving
- ✓ Moving cows during the transition between stage I and stage II labor disrupts normal calving behavior and labor progress

Discussion points...

- ✓ How much do cows want seclusion during calving?
- ✓ Do they benefit from a secluded calving environment?
- ✓ If you move a cow to a maternity pen, what signs should you look for?
- ✓ What are the advantages and disadvantages of group housing?



Thanks!

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