

Physical exercise during the dry period and dairy cattle performance

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Introduction

Dairy cattle “transition period”

- Dry period
 - Low activity
 - Feed intake > requirements
- Early lactation
 - High metabolism
 - Feed intake < requirements



Introduction

Early lactation

- Negative energy balance
- Metabolic disorders
- Start metabolic adaptation *before* calving
(Loor et al., 2006; Dann et al., 2005)



Introduction

Physical exercise during the dry period

- Effect on energy balance
 - Energy output
 - Feed intake?
- Effect on physical “fitness”
 - Activity postpartum



Experiment

- 34 multiparous dairy cows
 - Group WALK:
6 weeks of physical training, until calving
 - Group CON:
control treatment
-
- Training schedule: 2x/day 45 min (3,4 km/h)



Experiment



- Training schedule: 2x/day 45 min (3,4 km/h)



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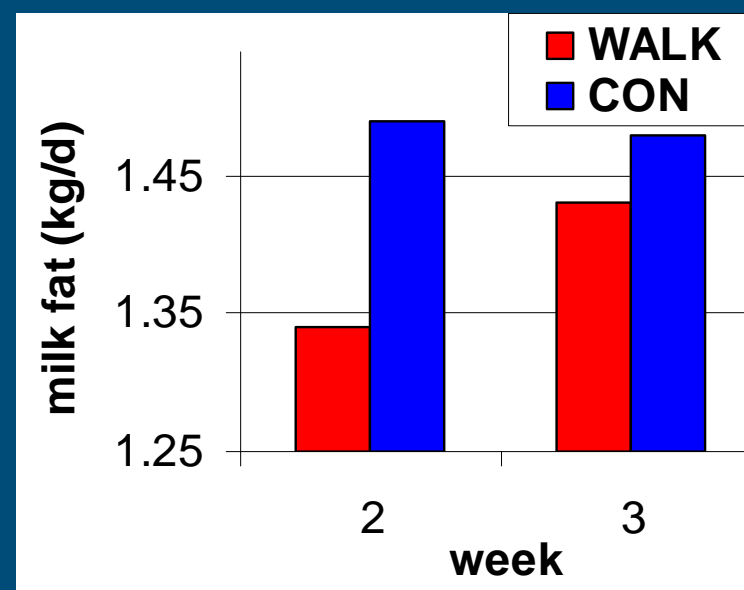
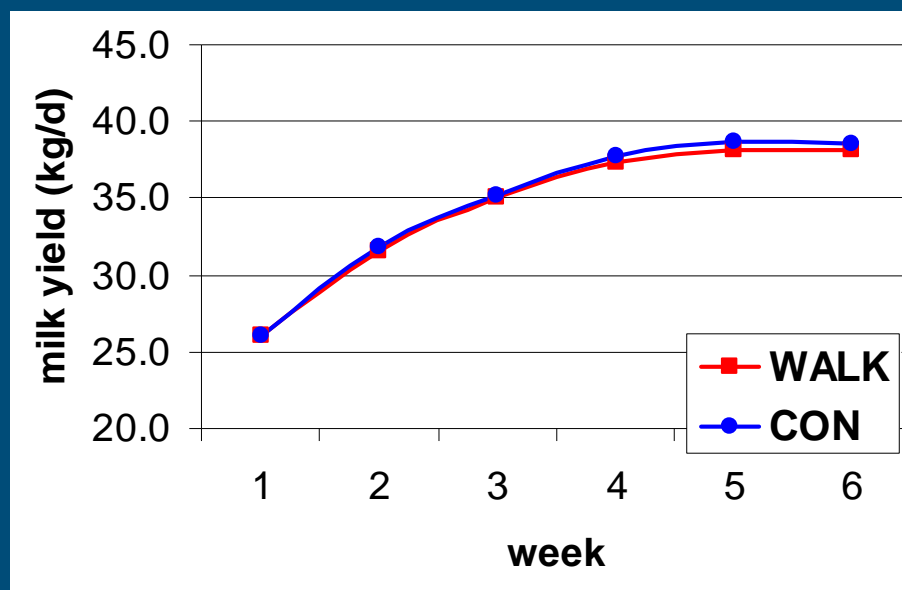
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Experiment

- Housing: free stall
- Feeding:
 - *ad libitum* grass silage
 - additional concentrates
- Measurements:
 - milk yield (wk 1 to 6)
 - milk composition (wk 2 & 3)
 - blood samples (6x)
 - BCS, live weight, activity
 - Feed intake *per group*

Results: milk

(kg/day)	CON	WALK	P-value
Milk yield	35.1	34.7	0.807
Milk protein	1.20	1.17	0.421
Milk fat	1.49	1.39	0.078



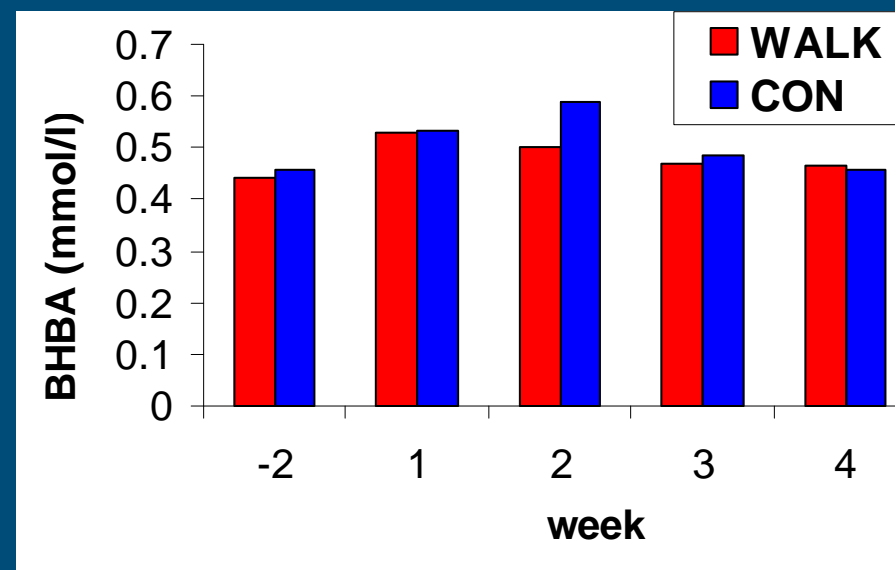
Results: blood samples

Sampling schedule:



- Glucose
- BHBA
- NEFA

	treatment	week x treat
Glucose	0.567	0.555
BHBA	0.523	0.648
NEFA	0.088	0.061



Conclusion

Physical exercise during the dry period

- More energy output
 - No compensation with feed intake
 - Fat mobilization
- ...prepares dairy cow metabolism for lactation

Discussion / further research

- Body condition score
 - Fat cows?
 - NEFA use in muscle activity (Adewuyi et al., 2006)
- Individual feed intake
 - Effect of activity



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Thank you for your attention!



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