



Aarhus University



Automatic recording of behaviour

Lene Munksgaard

Department of Animal Science

Aarhus University

- The treaty of Lisbon (2009) (Article 13:...*the Union and the Member States shall, since animals are sentient beings, pay full regard to the welfare requirements of animals,..*

Animal based indicators of welfare should be used (EFSA, 2012)

A cows eye view



Negative emotions

Fear, pain and discomfort

Lameness



Basic needs

Rest, feeding, social contact

This talk

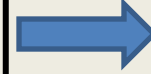
Automated monitoring

- cheap
- reliable



Activity

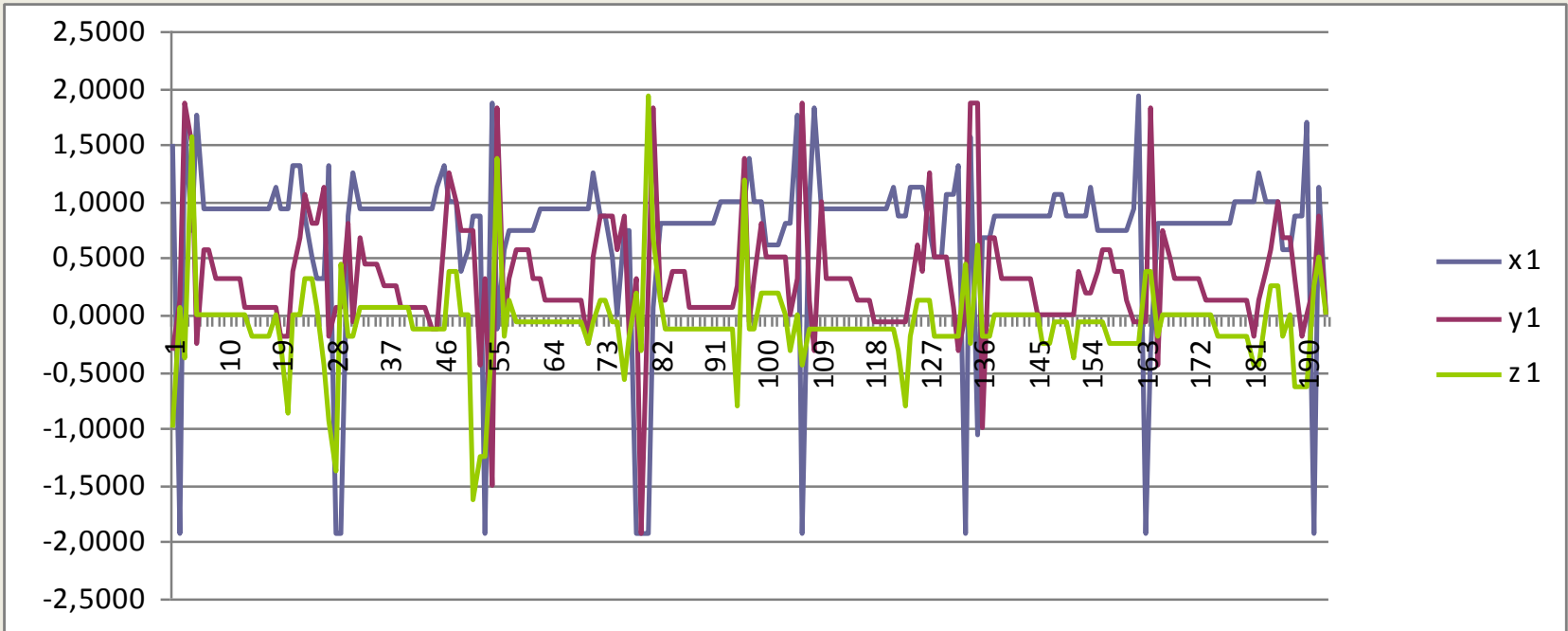
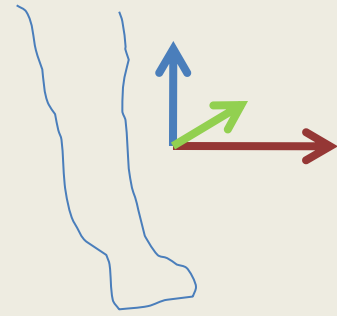
- Walking
- Standing
- Lying
- Eating
- Ruminating
- Social behav



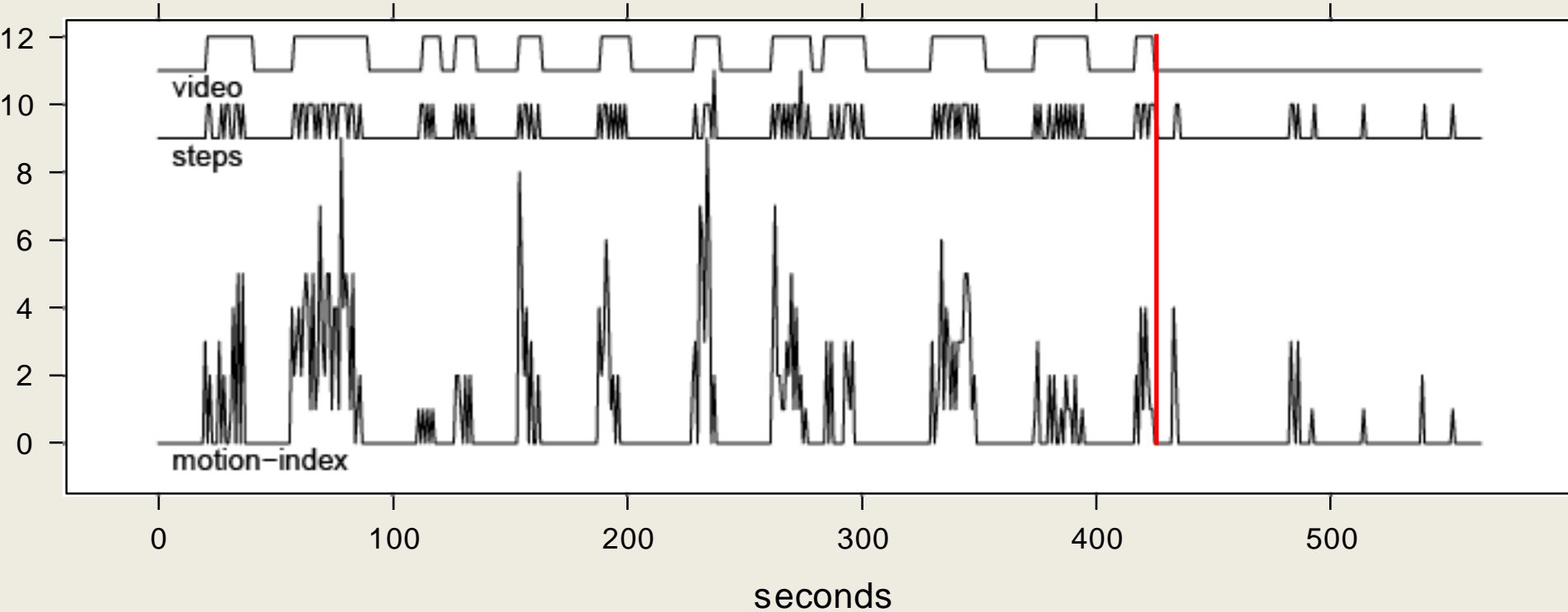
Management tool

- In heat
- Health
- Welfare
- Calving
- ??

Steps



Validation



Clear definitions of the behaviour

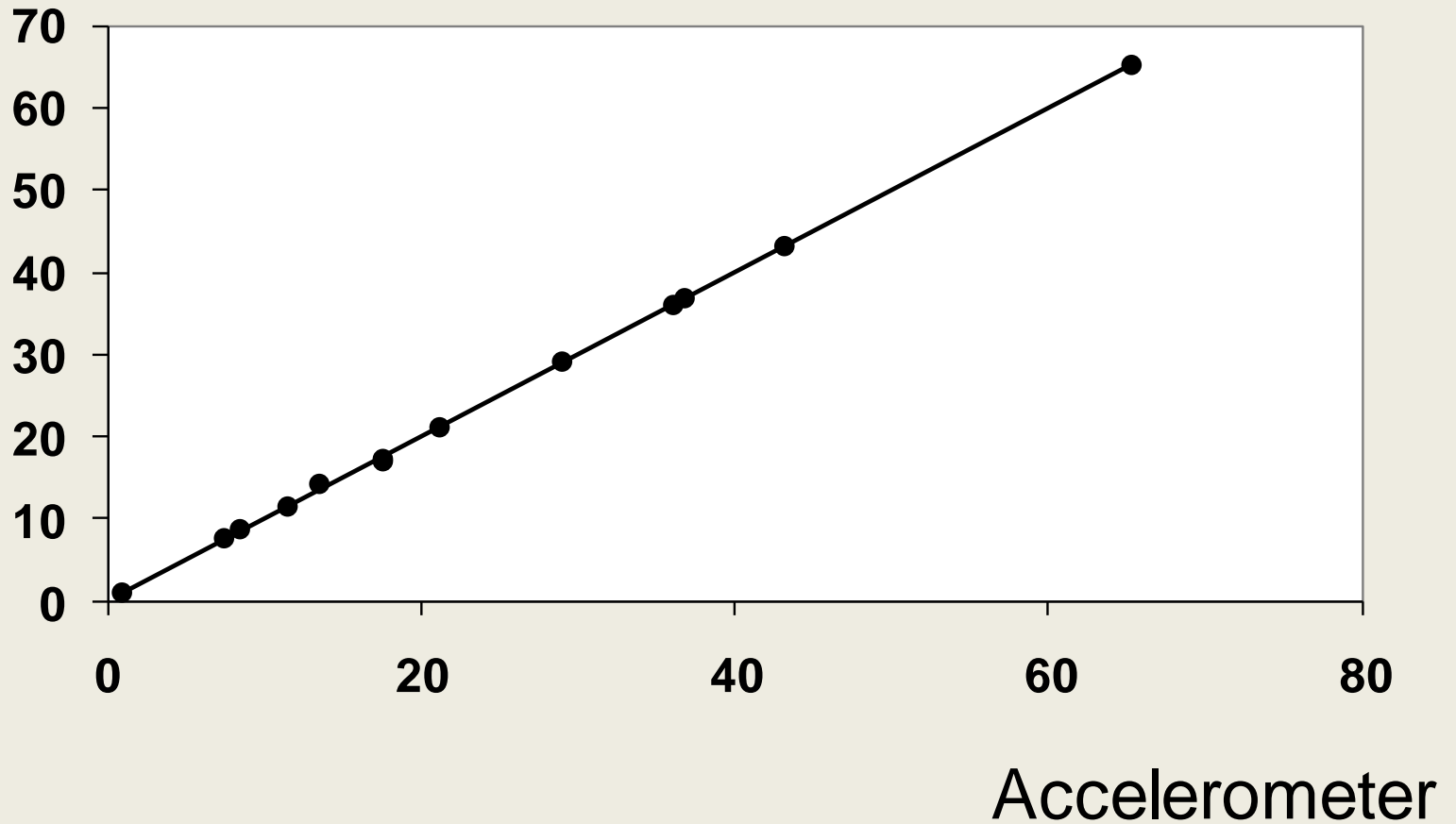
(Nielsen et al. 2010)

Misclassification

- Attached to leg (Nielsen et al. 2010)
Walking and standing: $\approx 10\%$
Lying: 1.7% (0)
- Attached to neck (Martiskainen et al. 2009)
Walking and standing: 19-29%
Lying: 15%

Duration of lying bouts, min

Visual observation



Eating

Grassing:

42 cows (K. Barth, Kiel)

40 cows (Foulum)

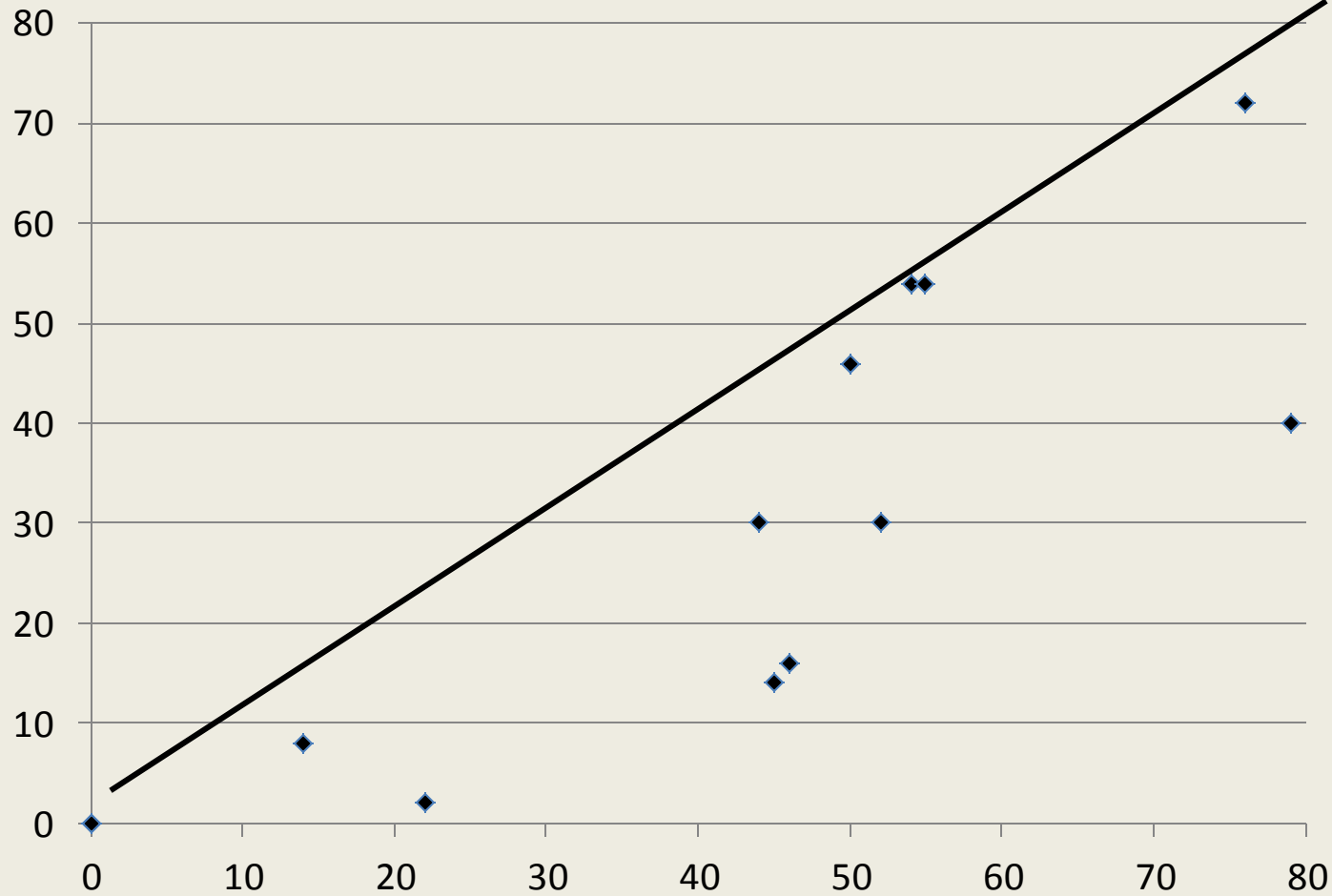
Sensitivity and specificity
 $\cong 0,85$



In a barn?

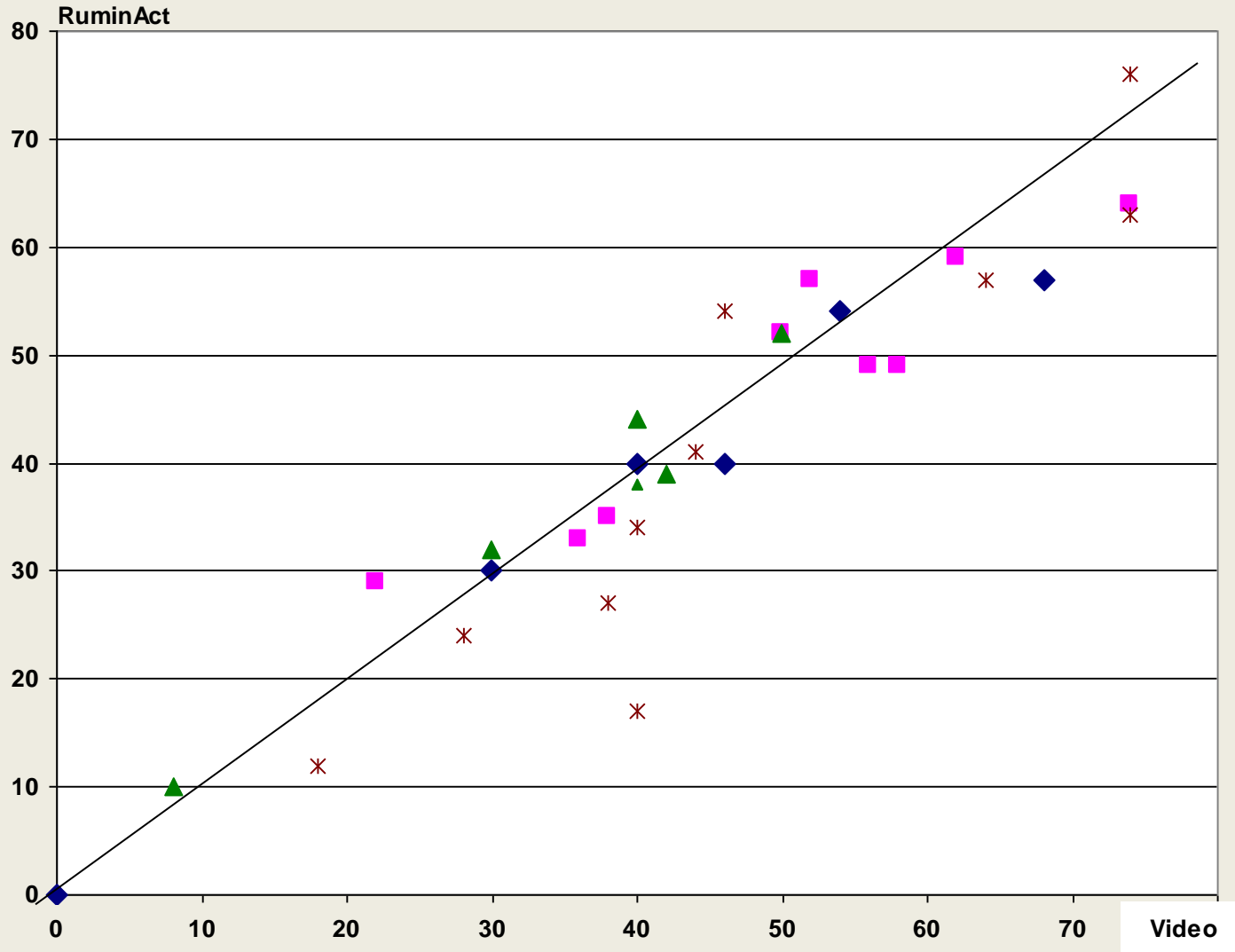
Rumination– min/2 hour

Sensor



Direct

Rumination– min/2 hours



Rumination



- Behavioural research - no
- Position important
- Commercial use?

This talk

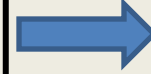
Automated monitoring

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Activity

- Walking **v**
- Standing **v**
- Lying **v**
- Eating (**v**)
- Ruminant(**v**)
- Social behav



Management tool

- In heat
- Health
- Welfare
- Calving
- ??

THANK YOU



Humans??