Possible usage of activity and rumination data as objective health data

S. Lacker, H. Kroll & D. Bar

Doron Bar, Dr.med.vet., PhD,
Chief scientist, April 2013

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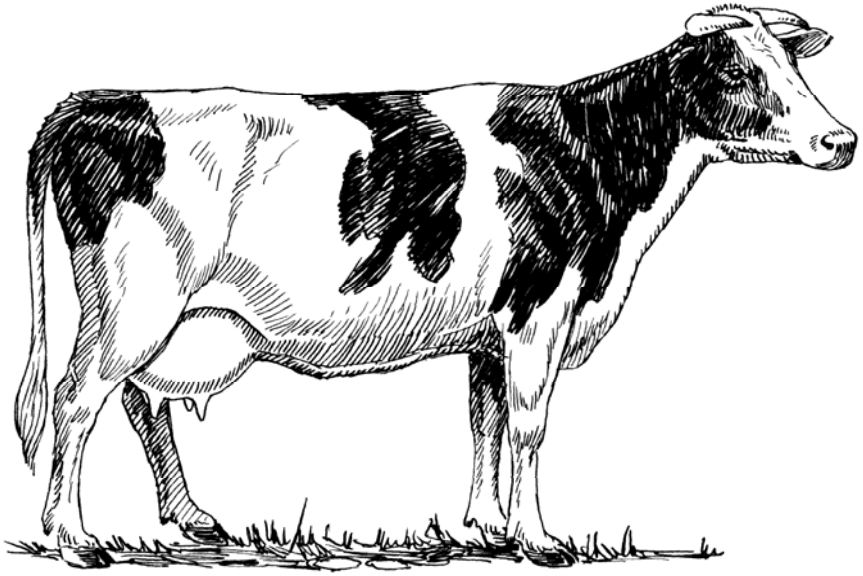
Wanted !



- High producing
- robust cows
- quickly return to cyclic activity
- express obvious estrus behavior

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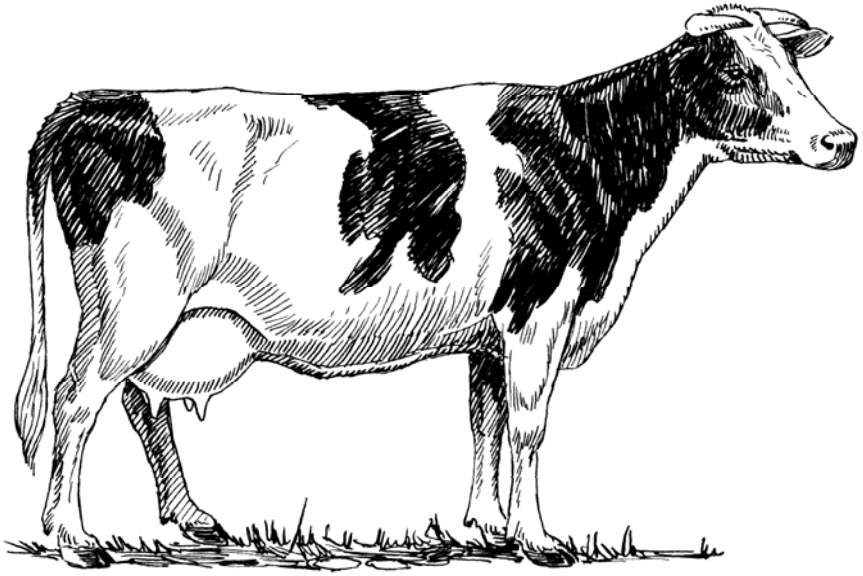
Needed !



- Way of measuring these desired traits
- Objective data
- Uniform data across farms

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Heatime® System

Heatime® can be used to measure estrus expression

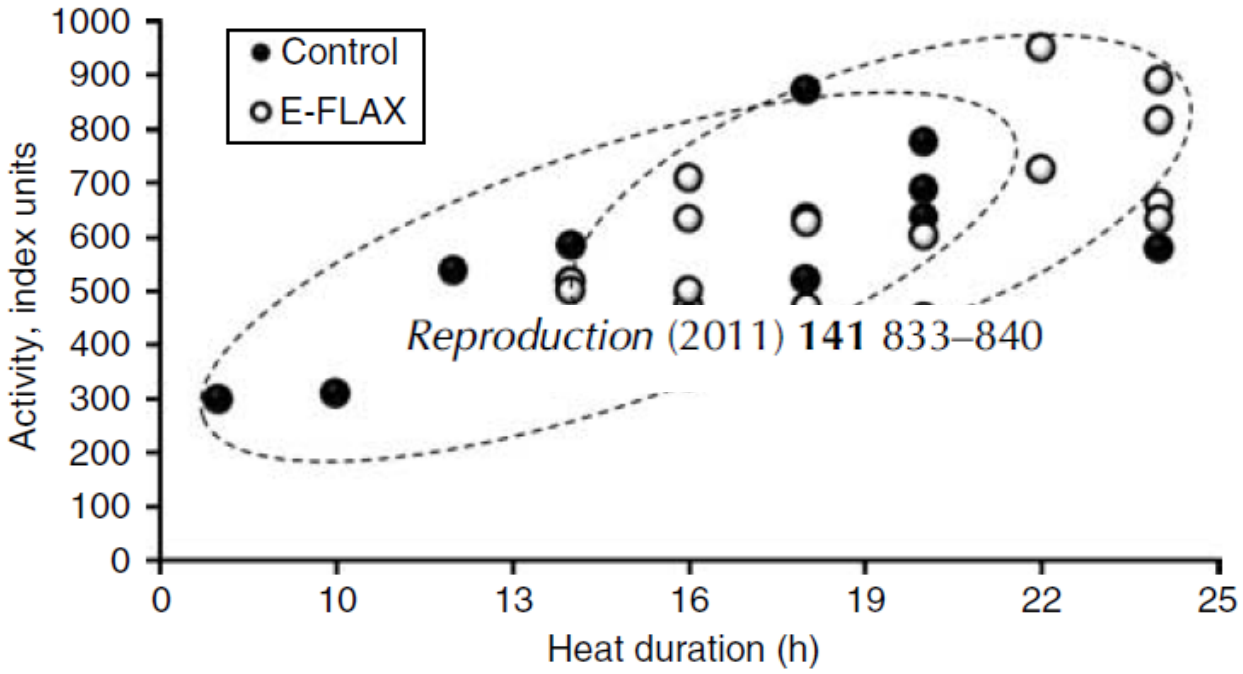

Figure 1 Activity and duration of behavioral estrus in dairy cows fed either a control diet (open circle) or supplemented with extruded flaxseed (E-FLAX; filled circle) providing C18:3n-3 at 172.2 and 402.5 g/day per cow, pre- and postpartum respectively.

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Zachut et al. (2011), Reproduction 141:833-840

Heatime® detects “real” heats and recommends the correct timing for insemination

- For the 89 cows included in the analysis, 22% (20/89) underwent luteal regression but did not ovulate (3 were detected in estrus by Heatime® ; HDR=15%), whereas 78% (69/89) regressed their CL and ovulated (60 were detected in estrus by Heatime® ; HDR=87%).
- We conclude that the Heatime® system determined the correct timing of AI for most of the cows that displayed estrus and that treatment with GnRH at the time of AI determined by the Heatime® system did not affect fertility in lactating dairy cows.

Valenza et al. 2012, J. Dairy Sci. 95(12):7115-2794

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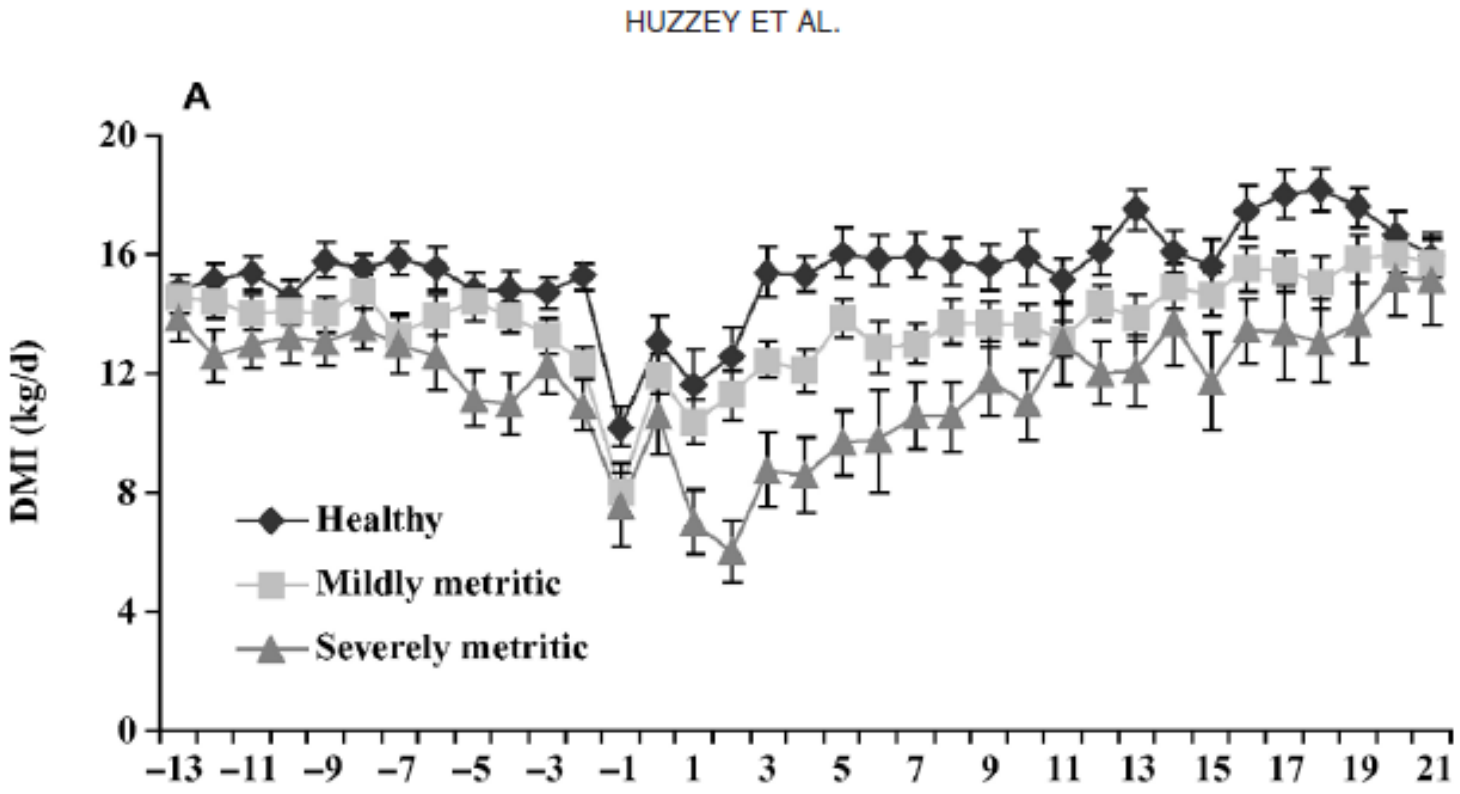
Intake and metritis status



J. Dairy Sci. 90:3220–3233

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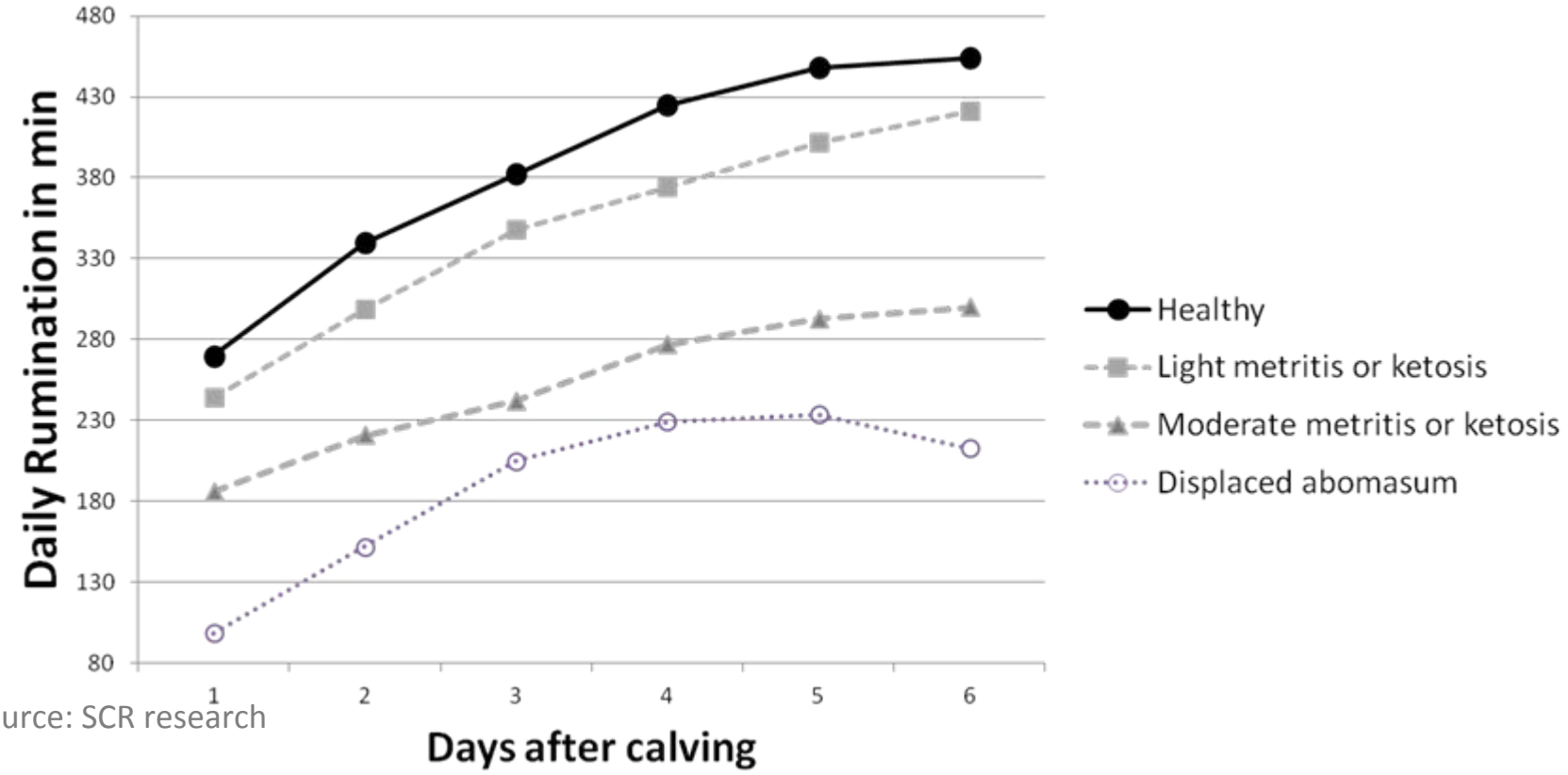
Prediction & early detection of post-calving disorders

Daily rumination time of healthy and (later diagnosed) diseased cows in the first week after calving



Source: SCR research

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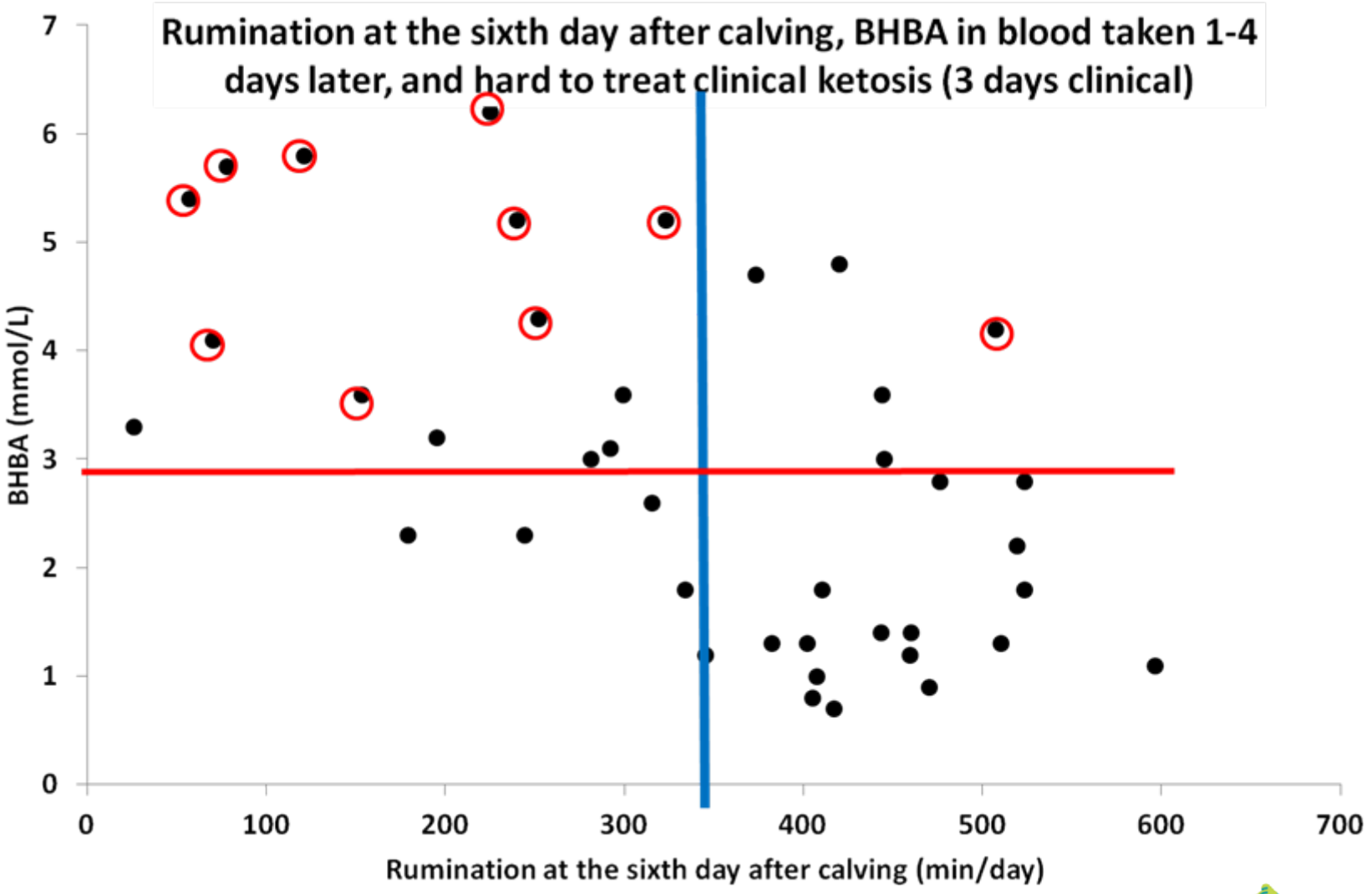
Ketosis prediction with daily rumination time



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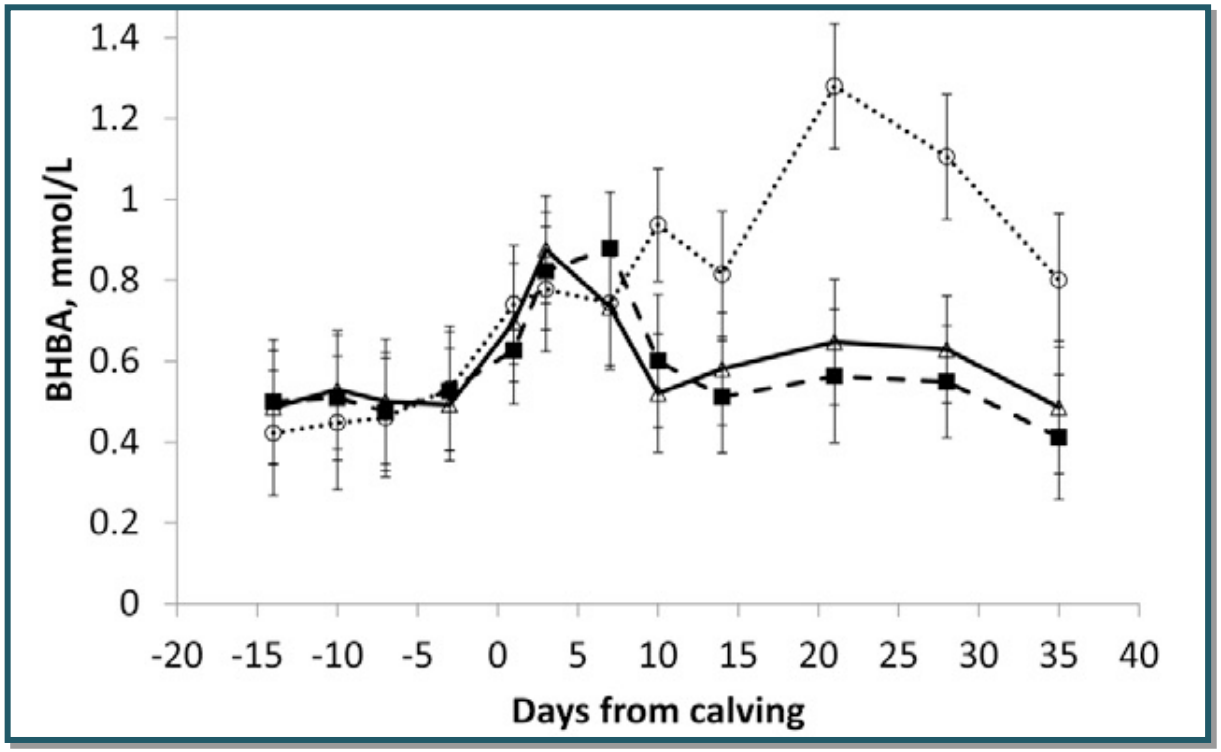
Relationships between rumination time, metabolic conditions, and health status in dairy cows during the transition period

N. Soriani, E. Trevisi and L. Calamari

Our results suggest that the automatic measurement of RT is useful to predict calving time and to quickly obtain information on health status of the animals in a period as critical as the transition phase.

Figure 5b. Behavior of plasma β-OH-butyric acid (BHBA) (Least Squares Means and SEM) during the transition period in cows categorized according to the rumination time before calving (dotted line with empty circles: short rumination time; dashed line with filled squares: middle rumination time; continuous line with empty triangles: long rumination time).



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Summary

- There is a way of measuring desirable traits in ovarian activity.
- There is a way of measuring the robustness of cows in the critical period around calving
- These data are objective, and applicable across countries
- Large amount of data is potentially available for research and genetic evaluation (millions of cows around the globe)

THANK YOU!

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