Effect of feeding management on thyroid status and energy metabolites in periparturient dairy cows

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The study revealed the effect of feeding management on basal metabolism rate.
Aims of the study

- Assessment of thyroid status on both farms
- Estimation of energy balance on both farms
- Effect of fT4 on basal metabolism rate on both farms
Materials and methods

• Total n=64 multiparous high yielding Holstein cows
• from two dairy farms with different feeding strategy
  • farm A: semi-intensive and pasture feeding management
  • farm B: intensive feeding management with concentrate prepared in accordance with stage of productive cycle

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Blood samples were taken from v. jugularis at days 30 and 7 before expected time of calving, as well as at days 14 and 60 after calving.

Days relative to calving

- Glucose
- NEFA
- BHBA

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Results and Discussion

Concentration of TT3

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Results and Discussion

Concentration of TT4

![Graph showing concentration of TT4 over days relative to calving for Farm A and Farm B.](image)

- Farm A: Start 66.15, End 66.18
- Farm B: Start 66.54, End 66.18

Concentration of TT4 ng/ml

Days relative to calving: -30, -7, 14, 60

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Concentration of fT3

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Concentration of fT4

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Concentration of Glucose

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Concentration of NEFA

Concentration of NEFA mmol/l

Days relative to calving

NEFA

Farm A

Farm B

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Concentration of BHBA

Concentration of BHBA mmol/l

Days relative to calving

BHBA

-30
-7
14
60

-30
-7
14
60

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Conclusion

Physiological bioactivity of fT₄ may play important role in metabolic rate of dairy cows during transition period by increasing oxidation of glucose and enhancing hepatic ketogenesis.

Due to importance of adequate transition of dairy cows from late pregnancy to early lactation period, this inappropriate adaptation provoked by inadequate feeding strategy may be significant risk factor that could result metabolism disturbance and consequently decreased milk production and increased incidence of metabolic diseases in pariparturient dairy cows.

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Thank you for your attention!