

Effects of Pre-partum DCAD and Vitamin D Source on Dairy Cows: Vitamin D, Mineral and Bone Metabolism

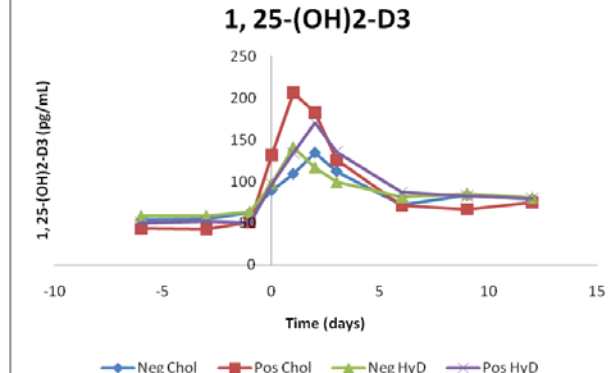
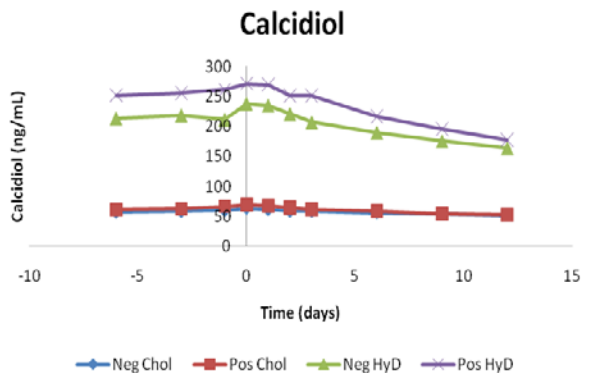
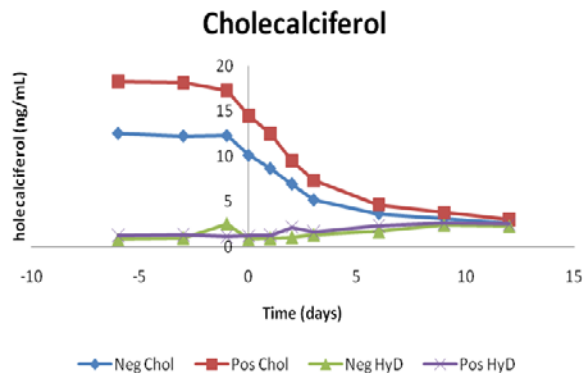
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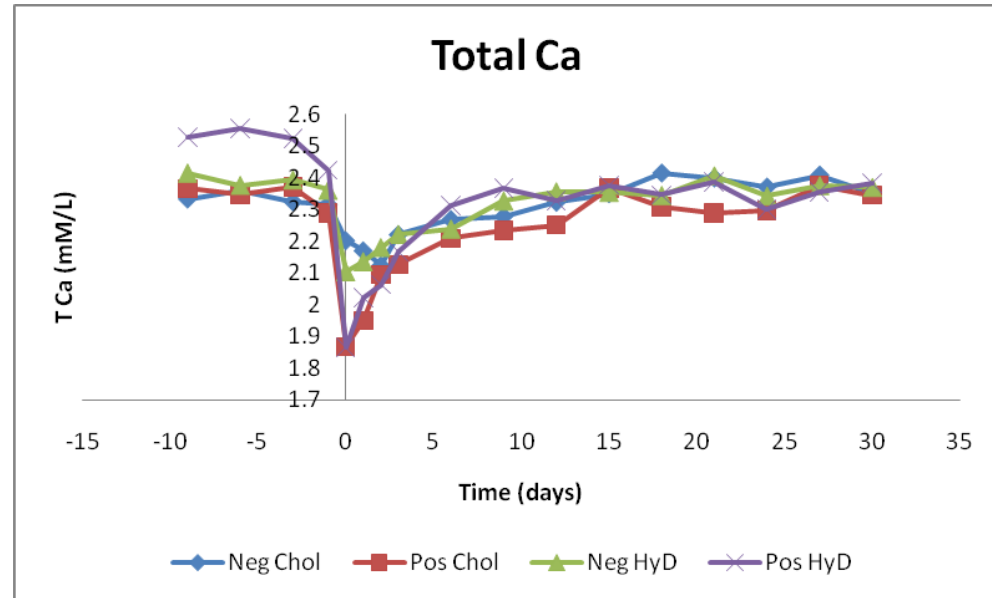
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Aim: Explore the response of transition cows to vitamin D source and DCAD.

- 51 nulliparous and 28 multiparous (n=79) Holstein cows were blocked by parity and milk yield and allocated for one of 4 dietary treatments in a 2 X 2 factorial design for 21 days prepartum (diets balanced for MP).
- Measured blood metabolites (vitamin D and minerals), milk production and disease



- › Calcidiol supplementation increased blood calcium pre- and post-partum
- › Ca was decreased pre-partum and increased post-partum by negative DCAD diets.
- › Mg decreased while P increased in cows receiving calcidiol.
- › Blood Ca and Mg were higher in nulliparous than multiparous cows both pre- and post-partum.



› Production

- Feeding calcidiol **increased milk yield** by 2.93 ± 0.98 L /day, and milk solids (fat + protein) yield by 0.25kg/day
 - (tended to increase fat and protein yield by 0.14 and 0.11 kg/day respectively).
- The interaction of negative DCAD and calcidiol **increased milk solids yield** by 19 and 11% in nulliparous and multiparous cows respectively.

› Disease

- › Negative DCAD eliminated **clinical milk fever** (0% v 23.1%) and reduced subclinical MF (iCa <1.06mM) at 0 DIM (20% v 69.3%) and 1 DIM (34.3% v 76.5%)
- › Calcidiol reduced incidence of **retained placenta (2.5% v 30.8%) and metritis (23.1% vs 42.2%)**.
- › Cows fed negative DCAD and calcidiol combined had reduced morbidity compared with all 3 other treatments.