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## Effect of negative energy balance on postpartum anestrus in an intensive dairy farm from Chinese province Heilongjiang

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**Background:** In recent decades, with the improvement of milk yield, the incidence of reproductive disorders in dairy cows gradually increased. Up to a 50% incidence of postpartum anestrus occurs in high-yielding cows, which is related to the negative energy balance (NEB). The purpose of this investigation was to determine the incidences of, and relationship between, postpartum anestrus and negative energy balance in an intensive dairy farm from Chinese province Heilongjiang.

**Method:** At 14 to 21 d after parturition, 100 cows were randomly selected and their plasma parameters measured, including  $\beta$ -hydroxybutyric acid, non-esterified fatty acid and glucose. Cows were assigned to a positive energy balance (PEB) group (n = 37) and a NEB group (n = 36) based on their  $\beta$ -hydroxybutyric acid concentrations (> 1.20 mmol/L). The two groups of cows were examined by rectal examination and B-mode ultrasonography from 60 to 90 d after parturition to identify estrus, the ovarian status of anestrus, and collect their clinical data.

**Results:** The incidence of NEB and PEB were 49% and 57% from 14 to 21 d after parturition, respectively. From 60 to 90 d after parturition, 94.4% of the NEB groups were in anestrus and 5.6% were in estrus, while 62.2 % of the PEB groups were in anestrus and 37.8 % were in estrus. Furthermore, the proportion of inactive ovaries in the NEB group was 61.8%.

**Conclusion & Significance:** Postpartum NEB and anestrus are common, and reduce the reproductive performance of the dairy cows in this farm. Furthermore, the NEB is an important factor causing inactive ovaries in high-yielding dairy cows.

### Biography

Ziling Fan is a postgraduate studying on animal metabolic diseases. Her research focuses on relation between nutrition and postpartum anestrus in dairy cows under the guidance of the professor Dr. Xia. During the period, to explore pathogenesis of anestrus in dairy cows, she has learned some research methods such as metabolomics and proteomics. In her research, some metabolites were discovered to be considered as potentially diagnostic markers and reveal the new pathogenesis of postpartum anestrus.

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