# Pre-calving Administration of a Rumensin® Controlled Release Capsule for the Prevention of Energy-Associated Disease

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## Introduction

Since most metabolic disease occurs in the first month of lactation, efforts in prevention have focused on the transition period (six weeks centered around calving). Previous research in Ontario has shown that, in addition to good nutritional management, administration of a Rumensin controlled release capsule (CRC) two to four weeks pre-calving may reduce the incidence of clinical ketosis and displaced abomasum post-calving. The objective of this study was to confirm previous findings of the Rumensin CRC in different herds, regions and years.

## Materials and Methods

A total of 1317 Holstein cows from 45 farms in Quebec (38), PEI (2) and Ontario (5) were enrolled in a CRC post-approval study in 1998/1999. Animals were randomly assigned within farm to either receive a Rumensin CRC or a negative control at two to four weeks pre-calving. Simple two-by-two contingency tables were created to screen ($p \leq 0.25$) for potential treatment effects on health. Logistic regression (Proc Genmod in SAS) was used to assess the impact of treatment on health variables identified with the initial screening process. Herd was included as a random variable and parity was included as a covariate in all models. Other variables were offered in a backward elimination manner, including body condition score, twin births, difficult calving, and region. Data from the 1995 CRC pre-approval Ontario study was pooled with the current data and the same process was repeated. In these logistic regression models, year of the study was included as a variable in analysis.

## Results and Discussion

Rumensin CRCs were administered to 656 animals, while 661 cows served as negative controls in the post-approval study. The Rumensin CRC significantly reduced the risk of both displaced abomasum (DA) and clinical ketosis by nearly 40% ($p < 0.05$). Risk of retained placenta (RP) for Rumensin CRC-treated cows was numerically less than the negative control cows, but not statistically significant ($p = 0.23$). Region was statistically significant ($p < 0.01$) in all models, indicating that disease incidence varied by province. The pooled analysis revealed significant effects of Rumensin CRC treatment for reducing the incidence of clinical ketosis (OR 0.57, $p$=0.01) and DA (OR 0.58, $p$=0.005), and a tendency for a reduction in the incidence of RP (OR= 0.76, $p = 0.09$).

Results of the study support previous research that has shown positive health benefits from using the Rumensin CRC pre-calving. In addition, it appears that Rumensin CRC may also have an impact on reducing the incidence of RP. One possible mechanism for the effect on RPs might be through enhanced energy, improving immune function around the time of calving. With this in mind, the term "Energy-Associated Disease" was created to assess the combined impact of the Rumensin CRC on RP, DA, and clinical ketosis. The Rumensin CRC significantly reduced the incidence of energy-associated disease by a magnitude of 30% (OR 0.70, $p$=0.002). The Rumensin controlled release capsule is a useful aid in the prevention of energy-associated disease in the transition dairy cow.