Relationships among Postpartum Body Condition Score Change and Productive and Reproductive Performance in Alberta Dairy Cows.

M. Gobikrushanth[2], A. Behrouzi[1], K. Macmillan[1], and M. G. Colazo[1]

[1]Livestock Research Section, Alberta Agriculture and Forestry, Edmonton, AB; [2]Department of Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB; E-mail: marcos.colazo@gov.ab.ca

BACKGROUND & OBJECTIVES

It is recommended that cows calve with a body condition score (BCS) of 3 to 3.25 and that BCS loss in early lactation is minimized. Loss of BCS postpartum is related to a negative energy balance, as well as production and reproduction.
Our objective was to:

- **Determine the relationships among postpartum body condition score (BCS) change and milk yield and reproductive performance.**

MATERIALS & METHODS

- A total of 911 lactating Holstein cows from 11 dairy herds in Alberta were retrospectively analysed.
- BCS was assessed at 2 to 14 d before calving (BCS1) and approximately 35 DIM (BCS2) using a 5-point scale with 0.25 increments (1 = thin and 5 = fat).
- Cows were categorized based on BCS change (BCSC) between BCS1 and BCS 2 as:

Extreme Loss (EL)	Moderate Loss (ML)	Maintain (M)	Gained (G)
≥ -0.75	-0.25 to -0.50	0.0	≥ 0.25

- Cyclicity, based on the presence of a CL, was determined by ultrasonography at 35 DIM.
- Data were retrieved from DairyComp 305 for:
  1. Milk production at 25 (M25) DIM, 90 (M90) DIM, peak and 305-d mature equivalent (305ME).
  2. Pregnancy rate to first AI (P1) and by 150 DIM (P150), as well as pregnancy loss (PRL) after first AI.

RESULTS

Table 1. Average BCS 2 to 14 d before calving (BCS1) and at 35 DIM (BCS2), and BCS change (BCSC) between BCS1 and BCS2 for cows categorized with extreme loss (EL), moderate loss (ML), maintenance (M) and gain (G).

	EL	ML	M	G
No. Cows	343 (38 %)	391 (43 %)	103 (11%)	74 (8 %)
BCS1	3.6^{a}	3.4^{b}	3.2^{c}	2.9^{d}
BCS2	2.7^{a}	3.0^{b}	3.2^{c}	3.2^{c}
BCSC	-0.9	-0.4	0	0.3

^{a,b,c,d} **Within a row, values with different letters are significantly different ($P < 0.05$).**

Table 2. Differences in DIM and milk production at 25 DIM (M25), 90 DIM (M90), peak and 305-d mature equivalent (305ME) between cows with extreme loss (EL), moderate loss (ML), maintenance (M) and gain (G) of BCS postpartum.

	EL	ML	M	G
DIM	318^{a}	315^{a}	314^{ab}	285^{b}
M25	811	817	812	787
M90	3487	3463	3441	3345
Peak	44.4^{a}	43.5^{ab}	43.6^{ab}	42.1^{b}
305ME	10962^{a}	10844^{ab}	10884^{ab*}	10259^{b*}

^{a,b} **Within a row, values with different letters are significantly different ($P < 0.05$)**
*** The 305ME tended to differ between M and G cows ($P = 0.09$).**

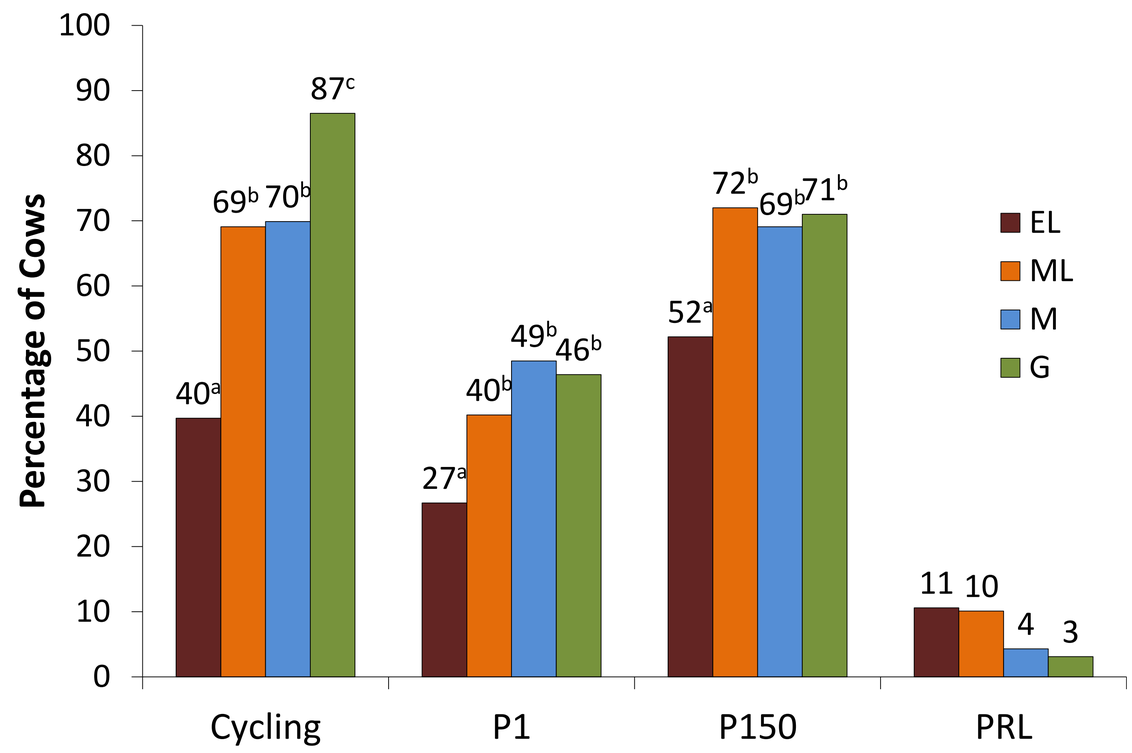

Figure 1. The differences in % cycling at 35 DIM, pregnancy rate to 1st AI (P1), pregnancy rate by 150 DIM (P150) and pregnancy loss (PRL) after 1st AI among cows with extreme loss (EL), moderate loss (ML), maintenance (M) and gain (G) of BCS postpartum.

^{a,b,c} **Within a row, values with different letters are significantly different ($P < 0.05$).**

TAKE HOME MESSAGE

- **Extreme loss of BCS after calving was associated with increased peak and 305-d mature equivalent milk yield compared to cows that gained BCS.**
- **Extreme loss of BCS was also associated with reduced cyclicity by 35 DIM and decreased pregnancy rates at the 1st AI and by 150 DIM.**
- **Ensuring maintenance or only a moderate loss of BCS (-0.50 to -0.25) in early lactation can improve fertility without reducing milk production.**
- **Cows with BCS loss in early lactation had a higher BCS before calving.**

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