

## The effect of slow-release milk replacer feeding on health and behaviour parameters in dairy breed calves

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### SUPPLEMENTARY FILE

**Supplementary Table S1.** Group vocalisation scoring chart. The group of calves was observed for 5 minutes, during which time the number of vocalisation bouts were counted and divided per calf. The loudness of vocalisation was subjectively assessed by the research veterinarian and categorised into one of the three categories (mild, moderate or loud). The overall vocalisation score was calculated by multiplying the two parameters (total score = frequency X intensity).

Parameter	Criteria	Points
Frequency of vocalising	none	0
Frequency of vocalising	$\leq 5/5$ min	1
Frequency of vocalising	$> 5/5$ min	2
Intensity of vocalising	mild	1
Intensity of vocalising	moderate	2
Intensity of vocalising	loud	3

**Supplementary Table S2.** Mean (SE) blood gas and serum hormone values for 15 calves before feeding (T0), and 6, 12, 18 and 24 hours after feeding (T6, T12, T18 and T24) with slow-release milk replacer (SR), casein enriched milk replacer (ER) and conventional milk replacer (Control). Significant within-group differences over time, relative to the preceding timepoint, are highlighted by astrices, based on post-hoc estimates from repeated measures mixed models.

Variable	Feeding Group	Timepoint				
		T0	T6	T12	T18	T24
pH	SR	7.35 (0.02)	7.42 (0.01)***	7.34 (0.02)***	7.35 (0.02)	7.39 (0.01)**
	ER	7.37 (0.02)	7.39 (0.02)*	7.38 (0.02)	7.38 (0.02)	7.37 (0.01)
	Control	7.36 (0.01)	7.43 (0.01)***	7.39 (0.02)*	7.38 (0.01)	7.37 (0.02)
HCO <sub>3</sub> <sup>-</sup> (mM)	SR	25.1 (2.0)	30.0 (1.5)***	31.5 (1.7)	28.6 (0.6)	33.8 (0.8)***
	ER	26.7 (1.0)	27.6 (0.8)	27.8 (1.1)	31.4 (0.8)*	31.4 (0.7)
	Control	29.0 (1.9)	31.3 (1.4)	31.8 (0.9)	31.3 (0.9)	32.9 (1.1)
BE (mM)	SR	-0.4 (2.3)	4.5 (1.3)***	6.3 (1.7)	2.6 (1.2)*	7.5 (0.7)***
	ER	1.7 (1.0)	1.9 (0.8)	2.8 (1.2)	5.6 (0.9)	5.7 (0.6)
	Control	3.3 (1.9)	5.7 (1.4)	6.4 (0.8)	5.2 (1.1)	6.9 (1.2)
Glucose (g/dL)	SR	67.0 (6.1)	97.8 (12.9)***	106.8 (8.4)	94.8 (8.8)	99.4 (10.7)
	ER	85.2 (11.4)	93.6 (8.8)	108.8 (4.3)	86.2 (4.7)**	99.2 (9.9)
	Control	93.3 (6.4)	91.0 (6.3)	109.5 (4.7)*	93.8 (10.6)*	111.8 (4.6)
Haemoglobin (g/dL)	SR	10.9 (0.7)	11.5 (0.3)	10.0 (0.2)	11.0 (1.4)	11.3 (0.7)
	ER	10.7 (0.9)	11.2 (0.6)	8.6 (0.3)*	8.2 (0.9)	10.4 (0.6)*
	Control	9.5 (0.6)	9.6 (0.5)	11.3 (1.5)	10.6 (0.5)	9.3 (1.0)
Na <sup>+</sup> (mM)	SR	134.5 (0.8)	135.6 (0.3)	134.7 (1.1)	134.3 (1.6)	132.9 (1.6)
	ER	131.7 (3.1)	135.9 (0.5)*	133.0 (0.8)**	133.1 (0.9)	134.2 (0.7)
	Control	132.8 (0.8)	133.6 (0.9)	135.8 (0.3)**	132.3 (1.3)**	132.5 (1.3)
K <sup>+</sup> (mM)	SR	4.4 (0.2)	4.1 (0.1)	4.5 (0.1)	4.7 (0.1)	4.5 (0.1)
	ER	4.5 (0.1)	4.5 (0.2)	4.6 (0.1)	4.3 (0.1)	4.3 (0.2)
	Control	4.6 (0.1)	4.4 (0.2)	4.7 (0.2)	4.6 (0.2)	4.3 (0.1)
Cl <sup>-</sup> (mM)	SR	101.2 (1.0)	99.4 (0.7)*	97.0 (2.1)	99.3 (0.5)	95.6 (1.4)
	ER	97.8 (2.0)	100.0 (0.5)	98.0 (0.8)	98.6 (0.7)	98.0 (0.8)
	Control	99.2 (1.7)	97.8 (1.5)	99.3 (0.8)	95.7 (1.7)	98.0 (0.9)
Insulin (mU/L)	SR	2.25 (0.12)	-	2.17 (0.24)	-	2.23 (0.10)
	ER	2.38 (0.13)	-	2.19 (0.03)*	-	1.84 (0.27)**
	Control	2.24 (0.05)	-	2.72 (0.08)*	-	2.34 (0.04)***

Cortisol (ng/ml)	SR	152.4 (31.5)	-	175.5 (32.7)	-	123.2 (11.2)
	ER	149.8 (12.8)	-	126.5 (10.8)	-	170.4 (44.0)
	Control	151.8 (23.6)	-	120.3 (14.1)	-	165.2 (42.7)
Adiponectin (pg/ml)	SR	103.8 (7.4)	-	176.6 (77.7)	-	182.0 (98.3)
	ER	170.6 (32.1)	-	219.3 (5.4)	-	177.9 (61.2)
	Control	184.6 (70.5)	-	255.4 (34.1)*	-	111.1 (41.9)**
CCK (pg/ml)	SR	112.5 (11.6)	-	197.1 (75.1)	-	180.0 (73.2)
	ER	206.7 (60.6)	-	250.1 (80.3)	-	282.7 (78.2)
	Control	227.7 (69.5)	-	248.5 (45.6)	-	250.7 (49.4)

\*p ≤0.05; \*\* p ≤0.01; \*\*\* p <0.001; - not measured