Prolact CR® Human Milk Caloric Fortifier (Human, Pasteurized) Preparation Guidelines‡

Prolacta Clinical Advisory Board

Prolact CR is a human milk caloric fortifier that is intended for use with mother's own milk (MOM) or donor milk (DM) to increase calories and achieve adequate growth. Consider using Prolact CR caloric fortifier for premature infants in these clinical situations:

Proactive Uses:	Reactive Use:
• Feeding administration with human milk fat losses[1,2]	• Poor Growth[7]
• High producing mother, low-calorie MOM, non-standardized DM[3,4]	
• High energy expenditure[5,6]	
• When part of a standard feeding protocol or guideline	

How to Add Prolact CR Caloric Fortifier to Infant Feeds

It is important to optimize the concentration of Prolact+ H²MF® human milk fortifier (human, pasteurized) or Prolact RTF™ 24/26/28 human milk–based premature infant formula to ensure that protein goals are met when using Prolact CR caloric fortifier. When no creamatocrit or commercial human milk analyzer is being used to determine the caloric content of human milk, the following three methods can be used to calculate the amount of Prolact CR caloric fortifier needed to achieve nutritional goals.

Method 1. Increase Caloric Content of Human Milk Fortified With Prolact+ H²MF or Prolact RTF by Adding Prolact CR into Prepared Feeds*

Table 1. Prolact+ H²MF

	Human Milk (mL)	Prolact+ H²MF (mL)	Prolact CR (mL)	kcal/fl oz Increase	kcal/100 mL Increase	kcal/kg/day Increase	Total Grams of Protein/100 mL
Optimal Nutrition Products							
Human Milk + Prolact+6 H²MF	70	30	0				2.4
+ Prolact CR	70	30	4	2	7	10	2.4
+ Prolact CR	70	30	8	4	13	20	2.3
Human Milk + Prolact+8 H²MF	60	40	0				2.9
+ Prolact CR	60	40	4	2	6	10	2.9
+ Prolact CR	60	40	8	4	12	19	2.8
Additional Products for Feeding Flexibility							
Human Milk + Prolact+10 H²MF	50	50	0				3.5
+ Prolact CR	50	50	4	2	6	10	3.4
+ Prolact CR	50	50	10	4	14	23	3.2
Human Milk + Prolact+4 H²MF	80	20	0				1.9
+ Prolact CR	80	20	4	2	7	11	1.9
+ Prolact CR	80	20	8	4	13	21	1.9

Table 2. Prolact RTF

	Prolact RTF (mL)	Prolact CR (mL)	kcal/fl oz Increase	kcal/100 mL Increase	kcal/kg/day Increase	Total Grams of Protein/100 mL
Optimal Nutrition Products						
Prolact RTF 26	100	0				2.7
+ Prolact CR	100	4	2	6	10	2.6
+ Prolact CR	100	8	4	12	20	2.6
Prolact RTF 28	100	0				2.9
+ Prolact CR	100	4	2	6	10	2.8
+ Prolact CR	100	8	4	12	19	2.8
Additional Products for Feeding Flexibility						
Prolact RTF 24	100	0				2.4
+ Prolact CR	100	4	2	7	11	2.3
+ Prolact CR	100	8	4	13	21	2.3

Method 2. Increase Caloric Content of Human Milk Fortified With Prolact+ H²MF or Prolact RTF by Bolusing Prolact CR*

Table 1. Bolus Sample Order

3-hour feeding schedule	Additional calories from Prolact CR bolus**
1 mL Prolact CR/kg q 3 hours	21 kcal/kg/day

4-hour feeding schedule	Additional calories from Prolact CR bolus**
1.3 mL Prolact CR/kg q 4 hours	20 kcal/kg/day

**Average kcal/kg at intake volumes of 120 to 200 mL/kg/day

Table 2. Pre-Calculated Bolus Chart

Weight g	1 mL/kg Prolact CR q 3 hour***	1.3 mL/kg Prolact CR q 4 hour****
500-599	0.5	0.7
600-699	0.6	0.8
700-799	0.7	0.9
800-899	0.8	1.0
900-999	0.9	1.2
1000-1099	1.0	1.3
1100-1199	1.1	1.4
1200-1299	1.2	1.6
1300-1399	1.3	1.7
1400-1499	1.4	1.8
1500-1599	1.5	2.0
1600-1699	1.6	2.1
1700-1799	1.7	2.2
1800-1899	1.8	2.3
1900-1999	1.9	2.5
2000-2099	2.0	2.6

***Average 17 to 21 kcal/kg/day at intake volumes of 120 mL/kg/day to 200 mL/kg/day

****Average 16 to 20 kcal/kg/day at intake volumes of 120 mL/kg/day to 200 mL/kg/day

Method 3. Increase Caloric Content of 100 mL Unfortified Human Milk*

Human Milk	Prolact CR	Total Yield	kcal/oz Increase
100 mL	4 mL	104 mL	2
100 mL	8 mL	108 mL	4
100 mL	12 mL	112 mL	6
100 mL	16 mL	116 mL	8†
100 mL	22 mL	122 mL	10†

*The values for calories and protein in the table are based on the published reference that the human milk being fortified contains 20 kcal/oz and 0.9 g protein/100 mL[8] and Prolact CR provides a median of 2.6 kcal/mL

†The need to increase by 8 or 10 calories with Prolact CR caloric fortifier without additional fortification is rare but may be needed with complex medical management

1 Rogers SP, Hicks PD, Hamzo M, Veit LE, Abrams SA. Continuous feedings of fortified human milk lead to nutrient losses of fat, calcium and phosphorous. *Nutrients.* 2010;2(3):230-240. doi:10.3390/nu2030240 **2** Brooks C, Vickers AM, Aryal S. Comparison of lipid and calorie loss from donor human milk among 3 methods of simulated gavage feeding. *Adv Neonatal Care.* 2013;13(2):131-138. doi:1097/ANC.0b013e31827e225b **3** Lawrence RA, Lawrence RM. *Breastfeeding: A Guide for the Medical Profession.* 8th ed. Amsterdam, The Netherlands: Elsevier; 2015:104. **4** Wojcik KY, Rechtman DJ, Lee ML, et al. Macronutrient analysis of a nationwide sample of donor breast milk. *J Am Diet Assoc.* 2009; 109(1):137-140. doi:10.1016/j.jada.2008.10.008 **5** Embleton ND. Optimal protein and energy intakes in preterm infants. *Early Hum Dev.* 2007;83(12):831-7. doi:10.1016/j.earlhumdev.2007.10.001 **6** de Meer K, Westerterp KR, Houwen RH, Brouwers HA, Berger R, Okken A. Total energy expenditure in infants with bronchopulmonary dysplasia is associated with respiratory status. *Eur J Pediatr.* 1997;156(4):299-304. doi:10.1007/s004310050605 7 Hair AB, Blanco CL, Moreira AG, et al. Randomized trial of human milk cream as a supplement to standard fortification of an exclusive human milk-based diet in infants 750-1250 g birth weight. *J Pediatr.* 2014;165(5):915-920. doi:10.1016/j.jpeds.2014.07.005 **8** American Academy of Pediatrics Committee on Nutrition. Appendix A. In: Kleinman RE, Greer FR, eds. *Pediatric Nutrition.* 8th ed. Itasca, Il: American Academy of Pediatrics; 2019:1505-1508.

‡This document is intended to provide a guideline for healthcare providers on the use of an exclusive human milk diet in infants ≤1250 g birth weight. The information within is the collective opinion of the Prolacta Clinical Advisory Board, a committee sponsored by Prolacta Bioscience, Inc. As with all feeding guidelines, healthcare providers should exercise appropriate medical judgment in accordance with their clinical experience and outcomes related to the management of nutrition in very low birth weight infants.

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