

Supplementing Human Milk for Term Infants Experiencing Growth Failure: A Guide for Clinicians



Importance of Human Milk

Human Milk is the Gold Standard of Nutrition for Most Infants¹

- It offers disease protection for infants.
- Antibodies are shared from mother to infant.
- It helps reduce the risk of some maternal diseases.

Breastfeeding Recommendations²⁻⁴

- Exclusively breastfeeding through 6 months of age.
- Continue breastfeeding as primary source of nutrition through 12 months while introducing solid foods.
- Consider supplementary breastfeeding from one year and beyond with complementary foods (as long as mutually desired between mother and child).

Techniques and Tips When the Breastfed Infant is Not Gaining Weight

Breastfeeding Challenges May Arise for Both Mother and Infant⁵

- The mother may have hesitation or fears about breastfeeding that affect attempts to breastfeed.
- The mother may have sore nipples if infant has a poor latch or if mother is experiencing under or oversupply of milk, exhaustion, mastitis, or infection.
- The infant may have the inability to latch or swallow.
- The infant may have health issues impacting breastfeeding and be in the NICU which can lead to stress on all family members.

Tips for Overcoming Challenges When Infant is Not Gaining Weight^{6,7}

- Provide lactation support for the mother/parents (see a pediatric dietitian or lactation specialist).
- Utilize pumping to increase human milk production and retrieve as much human milk as possible; pump and provide via bottle or pump and freeze.
- Try smaller, more frequent feeds with maximum 20-minute feed time with a goal of feeding every 2–3 hours around the clock (8–12 feedings per day).
- Consider initiating a galactagogue, if clinically appropriate.
- Utilize alternative breastfeeding tools and techniques such as a nipple everter/shield and other human milk collectors.
- Consider alternative oral feeding tools such as spoon, dropper, medicine cup, or syringe.

When to Initiate Supplementation in Human Milk for Term Infants

Infant Indications⁷

- Poor growth velocity: <20g/day for full term infant, <0.8cm/week length increase, and <0.38cm head circumference increase or growth velocity below 75% of desired goal.
- Asymptomatic hypoglycemia, documented by laboratory blood glucose measurement.
- Signs and symptoms of dehydration.
- Weight loss of 8–10% (on day 5 of life or later); decline of weight for age z-score >1 when greater than 2 weeks of life or weight loss greater than 75th percentile for age.
- Delayed bowel movements, fewer than four stools on day 4 of life, or continued meconium stools on day 5.
- Hyperbilirubinemia.
- Macronutrient supplementation needed.
- Infant with severe fluid restrictions.

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Maternal Indications⁷

- » Delayed secretory activation (day 3–5 or later and inadequate intake by the infant) or primary glandular insufficiency.
- » Breast pathology or prior breast surgery resulting in poor milk production.
- » Temporary cessation of breastfeeding due to certain medications (e.g., chemotherapy) or temporary separation of mother and baby without expressed human milk available.
- » Intolerable pain during feedings unrelieved by interventions.

Benefits to Supplementation⁸

In a prospective intervention study of breastfed infants with failure to thrive, who were admitted to the hospital at an age of 28-99 days without underlying disease, infant formula was offered ad libitum after each breastfeeding, while continued breastfeeding was supported.

- The results included a significant increase in daily energy intake and improved growth in 72% of infants with failure to thrive on human milk feeding.
- Breastfeeding was maintained in 81% of infants.

Ways to Supplement for Term Infants

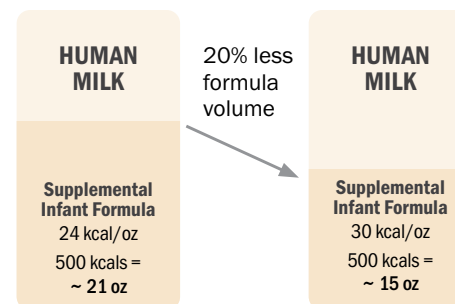
Use a combination of human milk and high calorie supplemental formula. Here are a few ways to do this:

- Use expressed human milk with powdered infant formula added to increase calorie concentration of human milk delivered via bottle. Most powdered formulas would need to be specially mixed to increase the caloric concentration greater than 20 kcal/oz.
- Continue breastfeeding and provide supplemental formula feedings.
- Use an energy and nutrient dense, ready-to-feed formula, especially with volume concerns.
- Use a 24-30 kcal/oz. infant formula with high protein and nutrient content and is nutritionally complete.

Note: Only ready-to-feed formulas are sterile; powdered formulas are not.

Use of an Energy and Nutrient Dense Formula

- Allows for less volume of the supplemental formula to provide needed nutrition
- To add 120 calories using a 24 kcal/oz. formula, you need 5 ounces of that formula. If using a 30 kcal/oz. formula, you would need 4 ounces of that formula, therefore displacing less human milk.
- To add 500 calories using a 24 kcal/oz. formula, you need 21 ounces of that formula. If using a 30 kcal/oz. formula, you would need 15 ounces of that formula, therefore displacing less human milk.



Additional Resource: ASPEN Enteral Nutrition Formula Guide

References:

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Nutricia North America supports the use of human milk whenever possible.