

Basics of Infant Formula

Nutrition

Full term infant formula = 20kCal/oz. Premature infant formula = 22kCal/oz.

To mix: Add 2 oz **water FIRST**. Then add 1 scoop formula (scoop provided in the can).

Why add the water first?

- If you add the formula first, it takes up some space in the bottle. Then, you only end up adding, say, 1.75 oz of water and you end up with more concentrated formula.

What's the difference between breastmilk and formula?

Breastmilk is the preferred source of nutrition for infants. It provides maternal antibodies and introduces healthy microbes to the gut. The caloric content of breastmilk may vary and will change during the course of a feed. In general, though, breastmilk is still 19-21 kCal/oz. **The only true contraindications to breastfeeding are HIV+ mother, galactosemia, illicit drug use.**

Breastfeeding an infant with CMPA, lactose intolerance, or food allergy:

Breastfed infants can still develop food allergies and intolerances because some food proteins that mothers eat can be detected in the breastmilk. If a breastfed baby exhibits poor growth, bloody stools, frequent spit-ups or emesis, or eczema, and food allergy or intolerance is suspected, it is reasonable for mother to cut out major allergens from her diet. One of the most common allergens is milk, so we often start with that. **Proteins from food can appear in mother's milk within 3-6 hours after ingesting them.** Once eliminated, it can take up to 1-2 weeks for these proteins to fully disappear.

Proper Storage:

- Breastmilk: Rule of 4's:** 4 hours at room temp, 4 days in the fridge, 4-6 months frozen. Once frozen breastmilk is thawed, good for 2 hours at room temp, 24 hours in fridge. NEVER refreeze breastmilk.
- Formula: 2 hours or less at room temp, 24 hours in the fridge**

Types of Formulas

Preterm Formulas

Formula Type	Protein source	Carb Source	When to Use
Preterm: 22kCal/oz S. Neosure E. Enfamcare E. Premature "PEF"	Milk Protein	Lactose	Use in preemies (< 37wk) because has extra vitamin D + other fat soluble vitamins, calcium, phos, more protein. If intake >500mL /day, risk of excessive fat sol vitamin intake.

Soy-based formulas

Formula Type	Protein source	Carb Source	When to Use
Soy Based S. Soy Isomil E. Prosobee G. Good Start Soy	Soy Protein	CSS	Good for babies with galactosemia, lactose intolerance, vegetarian families. Can try in babies with milk protein allergy, but there is high cross-reactivity.

Cow's Milk Based Formulas

Formula Type	Protein source	Carb Source	When to Use
Polymeric "regular formula" S. Advance E. Infant E. NeuroPro G. Good Start	Milk Protein	Contains lactose	Safe to start in all term babies (>37 weeks) NOT good for milk protein allergy, lactose intolerance.
Low Lactose S. Total Comfort E. Gentlease G. Soothe	Milk Protein	Less lactose, more CSS	Can try in babies with fussiness/gas thought to be due to lactose intolerance
Lactose Free S. Sensitive	Milk Protein	Lactose Free Uses CSS	^same
Thickened S. Spit-up E. A.R. (stands for Added Rice)	Milk Protein	Low Lactose. Added rice starch thickens the formula to reduce spit-up.	Good for infants who have GERD or spit-up frequently, as the added rice starch thickens when it enters the infant's acidic stomach environment. So, acid blockers like famotidine may actually decrease the utility of this formula.

Pre-digested Formulas

Formula Type	Protein source	Carb Source	When to Use
Semi-hydrolyzed S. Alimentum Nutramigen Pregestimil G. Extensive HA	Milk Protein has been pre-digested into small peptides	Lactose-free (Alimentum: sucrose & tapioca, Nutramigen: CSS)	Good for babies with milk protein allergy, malabsorption, GERD (good for GERD because moves through intestines quicker).
Elemental/ Amino acid based Elecare Alfamino PurAmino Neocate	Milk Protein has been extensively digested into amino acids (the smallest building blocks possible)	Lactose-free (CSS)	Good for milk protein allergy, malabsorption, multiple food allergies, eosinophilic esophagitis

Key: S: Similac. E: Enfamil. G: Gerber. CSS: Corn syrup solids.

Sources:

- CDC Safe Storage of Breastmilk Guidelines: https://www.cdc.gov/breastfeeding/recommendations/handling_breastmilk.htm
- <https://www.aafp.org/afp/2009/0401/p565.html>
- www.enfamil.com
- www.gerber.com
- www.similac.com

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