



Baby Formula Handbook

A Parent's Guide to Choosing Safe, High-Quality
Nutrition for Your Baby's Health and Growth



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Choosing the right baby formula can feel overwhelming for parents, especially with the wide array of products on the market and the rising awareness of unhealthy ingredients like seed oils, artificial additives, and unnecessary fillers. For many parents, breastfeeding may not be an option due to personal, medical, or logistical reasons, and finding a formula that closely mirrors the nutritional profile of breast milk—without compromising on quality—is a top priority.

This comprehensive guide is designed to help parents navigate the world of baby formula, focusing on clean, high-quality options that prioritize wholesome ingredients and avoid potentially harmful substances. Whether you're looking for dairy-based, goat milk-based, or plant-based alternatives, this resource will provide clarity, confidence, and informed choices for your baby's first foods. Additionally, for those considering homemade formulas, we'll discuss how to approach them safely to ensure nutritional adequacy for proper development during this crucial phase.

In This Guide:

- **Clean store-bought baby formulas and what to look for**
- **Homemade baby formula recipes**
- **Key concerns**
- **What is ARA and why is it important in baby formula?**
- **Key benefits of ARA and DHA**
- **Considerations when choosing baby formula**
- **Should you include ARA and DHA in homemade formula?**
- **Conclusion**



Please note:

Always consult with your baby's pediatrician or other qualified healthcare provider when selecting a formula or preparing a homemade formula, to ensure your choice aligns with your baby's unique needs for health and development.

Store-Bought Clean Baby Formulas

Dairy-Based Options:

Kendamil Organic (UK-based, widely available)

Full-cream milk-based formula (uses whole milk as the primary ingredient). Free from palm oil, soy, and synthetic additives. Contains natural prebiotics (from whole milk) and DHA from algal oil. Certified organic.

Bobbie Organic Infant Formula (US-based)

USDA-certified organic and European-compliant. No corn syrup or palm oil. Gentle lactose base for easy digestion.

Holle Organic Infant Formula (Germany)

Biodynamic (Demeter-certified) and organic. Uses whole milk and lactose with no artificial ingredients. Contains DHA from fish oil or algae, depending on the version.

Lebenswert Bio (Germany)

Organic, biodynamic farming practices. Simple and clean ingredient list with lactose as the main carbohydrate. No synthetic nutrients or soy.

Dairy-Free and Hypoallergenic Options:

Kendamil Goat Milk Formula

Gentle on sensitive tummies. Whole goat milk base, free from palm oil, soy, and synthetic fillers. Contains DHA from algae.

Holle Goat Milk Formula

Organic, whole goat milk. Naturally A2 protein, which is easier to digest. Great for babies with cow's milk sensitivities.

Else Plant-Based Formula

Certified organic, clean-label, plant-based formula for babies over 12 months. Made from almonds, tapioca, and buckwheat. Free of soy, dairy, corn syrup, and gluten.

Nutramigen or Alimentum (Hypoallergenic)

For infants with severe cow's milk or soy protein intolerance. Extensively hydrolyzed formulas (proteins are broken down for easier digestion).



Store-Bought Clean Baby Formulas

Additional store bough formula options:

It's important to note that **most commercial formulas incorporate some form of vegetable oils** to mimic the fat composition of breast milk. However, certain brands prioritize using healthier fat sources and avoid highly processed or controversial oils. Here are some additional options to consider:

ByHeart Infant Formula

Utilizes a blend of high-quality fats, including organic high oleic sunflower oil and organic coconut oil. Avoids the use of palm oil and soy oil. Includes added prebiotics and nucleotides for digestive and immune support.

ByHeart is a US-based company that emphasizes clean, whole-food ingredients in their formula.

Nannycare Goat Milk Formula

Based on whole goat milk, providing natural milk fats. Does not contain palm oil or soy oil. Suitable for infants who may have sensitivities to cow's milk.

Nannycare formulas are produced in New Zealand and adhere to high-quality standards.

Jovie Goat Milk Formula

Made with organic whole goat milk, offering natural milk fat content. Avoids the use of palm oil and soy oil. Enriched with essential fatty acids DHA and ARA.

Jovie is a European brand committed to organic and clean ingredients.

Key Tips for Recommending Baby Formula:

Clean Ingredient Labels: Avoid products with high fructose corn syrup, palm oil, synthetic preservatives, and artificial colors.

Goat Milk as an Alternative: For babies with cow's milk sensitivities, goat milk can be gentler on digestion.

Probiotic Enrichment: Suggest formulas with added probiotics or recommend a separate infant-safe probiotic.

Fortification with DHA and ARA: Ensure the formula has essential fatty acids for brain development.



Homemade Baby Formula

For parents considering a DIY option, homemade formulas can provide control over ingredients but must be prepared with extreme care to meet nutritional needs. We always recommend discussing with their pediatrician first.

Example Recipe (Weston A. Price Foundation-Based):

Ingredients (Cow or Goat Milk Base):

- 2 cups raw, organic, pasture-raised whole milk (or goat milk)
- 1/4 cup homemade liquid whey (remove curds from plain yogurt or kefir)
- 1/4 teaspoon high-vitamin cod liver oil
- 1/2 teaspoon fermented cod liver oil
- 2 teaspoons nutritional yeast flakes
- 1/4 teaspoon Acerola powder
- 1/4 teaspoon unrefined sea salt
- 2 teaspoons organic, grass-fed cream (for extra fat)
- 1/4 teaspoon probiotic powder
- 2 teaspoons lactose sugar (to mimic breast milk composition)

Preparation: Blend all ingredients and heat gently to body temperature before serving. Store leftovers in the fridge for up to 24 hours.

Alternatives: Some parents prefer goat's milk formulas, which are easier to digest and naturally closer to human milk composition (see next recipe).

Potential Risk: Homemade formulas are nutrient-intensive but lack some critical fortifications (e.g., DHA, iron). Only recommended with proper supplementation and oversight.



Homemade Baby Formula

Homemade Infant Formula Recipe (Goat Milk-Based)

This goat milk formula is inspired by the Weston A. Price Foundation guidelines. Goat milk is naturally lower in folate and vitamin B12 than cow's milk, so fortification is necessary.

Ingredients:

- 2 cups **fresh, organic raw goat milk** (or pasteurized if raw is unavailable)
- 1/4 cup homemade liquid whey (from draining yogurt or kefir; ensure no curds remain)
- 1 7/8 cups filtered water (to dilute the goat milk; goat milk is naturally high in protein)
- 1/4 cup organic lactose sugar (mimics the lactose content in breast milk)
- 2 teaspoons **organic, grass-fed cream** (optional, for additional fat)
- 1/2 teaspoon high-vitamin cod liver oil (or DHA/ARA drops suitable for infants)
- 1/4 teaspoon **acerola powder** (as a source of vitamin C)
- 1/4 teaspoon **unrefined sea salt** (provides trace minerals and sodium)
- 2 teaspoons **nutritional yeast flakes** (for B vitamins, particularly B12)
- 1/4 teaspoon **infant probiotic powder** (to support gut health and digestion)
- 1 teaspoon **sunflower or olive oil** (provides essential fatty acids).

Preparation:

1. In a clean blender, add all ingredients and blend on low until fully combined.
2. Heat the formula gently in a bottle warmer or by placing the bottle in warm water until it reaches body temperature. Avoid overheating to preserve the integrity of nutrients.
3. Store any leftovers in the refrigerator for up to 24 hours.

Important Warning: Accuracy is Essential

Homemade formulas can meet the nutritional needs of infants only if prepared precisely. Parents should understand the risks of deviations in the recipe or improper preparation. Continue reading for more on key concerns.



Key Concerns

Electrolyte Imbalance:

The wrong water-to-milk ratio can dilute or concentrate electrolytes, potentially leading to dehydration, kidney strain, or sodium imbalance. Never use more or less water than the recipe specifies.

Micronutrient Deficiencies:

Goat milk and cow's milk lack sufficient folate, vitamin B12, and iron, critical for infant brain development and red blood cell production. Fortification with **acerola powder (vitamin C)** and **nutritional yeast (B12)** is essential.

Protein Overload:

Raw or undiluted milk has much higher protein levels than breast milk, which can tax an infant's immature kidneys. Proper dilution and the addition of lactose sugar mimic breast milk's lower protein profile.

Fat Content and Ratios:

Fat is essential for brain development, but the balance of omega-6 and omega-3 fatty acids must be correct. Including sources like cod liver oil or algal DHA ensures adequate and safe fatty acid levels.

Sanitation Risks:

Any tools, bottles, or equipment must be sterilized. Infants are highly vulnerable to bacterial infections.

Caloric Sufficiency:

Breast milk has a specific calorie density, and any deviations in the recipe can lead to underfeeding or overfeeding. Accurate ingredient measurements are non-negotiable.

Warning for Very Young Infants (Under 6 Months):

Infants under 6 months are particularly vulnerable to deficiencies and imbalances. Homemade formula is not a first-line recommendation for newborns unless supervised by a pediatrician or other qualified healthcare professional. Always consult with a healthcare provider when preparing formula, especially for infants with specific needs or health concerns.

What is ARA and why is it important in baby formula?

What is ARA?

Natural Role: ARA is a key structural component of cell membranes, particularly in the brain and eyes. It is also involved in signaling pathways for inflammation and immunity.

Sources in Breast Milk: ARA is naturally found in breast milk and is crucial for newborns, particularly during the first year of life when rapid growth and brain development occur.

Paired with DHA: In most infant formulas, ARA is paired with DHA (docosahexaenoic acid), an omega-3 fatty acid, to mimic the natural balance found in breast milk.

ARA (Arachidonic Acid)

Type: Omega-6 fatty acid.

Sources: Found naturally in animal products (meat, eggs, poultry) and breast milk.

Role: A structural component of cell membranes. Involved in **immune system regulation** and **inflammatory response**. Essential for **brain development** and **muscle growth** in infants.

In Formula: Often added alongside DHA to replicate breast milk composition.

Why is ARA Important in Baby Formula?

Brain Development: Supports cognitive function and overall brain growth.

Eye Health: Works alongside DHA to develop the retina and improve visual acuity.

Immune System: Plays a role in the development of a healthy immune response.

Growth: Contributes to overall growth and cell development in infants.

ARA in Infant Formulas

Source: ARA in formulas is often derived from fungal oils (*Mortierella alpina*), which is similar to its naturally occurring form.

Fortified Formulas: High-quality infant formulas include both ARA and DHA to replicate the composition of breast milk and support optimal development.

Do All Babies Need ARA?

Most experts agree that ARA is beneficial for infant development, especially in the first year. However:

Formula Without ARA: Some parents prefer formulas without ARA due to concerns over extraction methods or sensitivities in certain infants. In such cases, formulas may still provide other essential fats like linoleic acid, which the body can convert into ARA in small amounts.

Food Introduction: For babies older than 6 months, introducing ARA-rich foods like egg yolks, meats, and poultry can complement formula or weaning diets.

Key benefits of ARA and DHA

DHA (Docosahexaenoic Acid)

Type: Omega-3 fatty acid.

Sources: Found in fatty fish (salmon, sardines), algae, and breast milk.

Role: Vital for **brain and cognitive development**. Supports **retinal health** and visual acuity. Promotes a **healthy nervous system**.

In Formula: Often paired with ARA for balanced infant development.

EPA (Eicosapentaenoic Acid)

Type: Omega-3 fatty acid.

Sources: Found in fatty fish (salmon, mackerel, herring).

Role: Primarily involved in reducing **inflammation**. Supports **cardiovascular health**.

Less critical than DHA and ARA in infant development.

In Formula: Rarely included because infants typically convert DHA into small amounts of EPA when needed.

How They Work Together

DHA and ARA: These are the most critical fatty acids for infants, contributing to brain, eye, and immune development. **EPA:** Plays a lesser role in early development but is more relevant in reducing inflammation and supporting cardiovascular health later in life.

Why ARA and DHA Are Important for Infants

ARA (Arachidonic Acid) and **DHA (Docosahexaenoic Acid)** are **long-chain fatty acids** naturally found in breast milk and critical for the rapid growth and development of babies. These fatty acids are building blocks for the brain, eyes, and immune system during the first year of life. Babies rely on dietary sources of ARA and DHA since their bodies cannot produce enough on their own.

Key Benefits of ARA and DHA

Brain Development: DHA is crucial for the growth of the brain and central nervous system. ARA complements DHA by supporting cell signaling and overall brain function.

Eye Health: DHA helps build the retina, improving visual acuity. ARA works alongside DHA to develop healthy eye function.

Immune Support: ARA is essential for a balanced immune response and supports healthy inflammation regulation.

Growth and Repair: ARA supports tissue growth and repair, particularly in muscles and organs.

Considerations When Choosing Baby Formula

When breastfeeding is not possible, look for formulas that closely replicate the fatty acid profile of breast milk. Here's what to emphasize:

ARA and DHA Content

Look for formulas with **both ARA and DHA** to ensure proper brain and immune development. The World Health Organization (WHO) recommends DHA in formulas at **0.2-0.5% of total fat** and ARA at **at least equal levels to DHA**. High-quality formulas like **Kendamil, Holle, or Bobbie** include both in optimal ratios.

Natural Sources

ARA is usually sourced from *Mortierella alpina* oil, and DHA from algal oil or fish oil. These are safe, bioavailable, and mimic breast milk.

Avoid Formulas with Fillers:

Avoid brands using corn syrup, palm oil, or unnecessary additives. These can interfere with nutrient absorption and digestion.

Goat Milk for Sensitive Tummies:

For babies with sensitivities, goat milk-based formulas naturally contain easier-to-digest fats and proteins, including ARA and DHA.

Homemade Formula: Should You Include ARA and DHA?

While homemade formulas give parents control over ingredients, **they may lack critical nutrients** like ARA and DHA **unless carefully fortified**.

If Making Your Own Formula:

ARA Sources: Naturally present in animal fats (e.g., egg yolk, liver). Can be supplemented with high-quality oils, such as liver-based formulas or cod liver oil (if age-appropriate).

DHA Sources: Add high-quality algal oil DHA supplements designed for infants. Cod liver oil also provides DHA but must be used sparingly to avoid excess vitamin A.

Balance Omega-6 and Omega-3: Breast milk has a specific ratio of omega-6 (ARA) to omega-3 (DHA) fats. It's essential to mimic this balance for proper development. Avoid excessive omega-6 fats (e.g., soybean or vegetable oil) as they can promote inflammation without enough omega-3 to counterbalance.

Supplementation is Key: Homemade formulas may require additional fortification with iron, vitamin D, and other critical micronutrients to match commercial formula standards.



Selecting a baby formula is one of the most important decisions a parent can make, and understanding the ingredients and nutritional value is key to making an informed choice.

By choosing high-quality, clean formulas that prioritize natural, wholesome ingredients and avoid fillers and seed oils, parents can provide their babies with the essential nutrients needed for optimal growth and development.

For those considering homemade formulas, it's crucial to ensure precise measurements and a proper balance of nutrients to avoid deficiencies or health risks, especially in very young infants. Consulting with a healthcare provider is always recommended to ensure your choice aligns with your baby's unique needs.



A photograph of a young woman with dark hair, wearing a white long-sleeved shirt, holding a baby up in the air. The baby is smiling and looking towards the camera. The background is a softly blurred indoor setting with warm lighting.

Learn more & find resources:
imahealth.org



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