

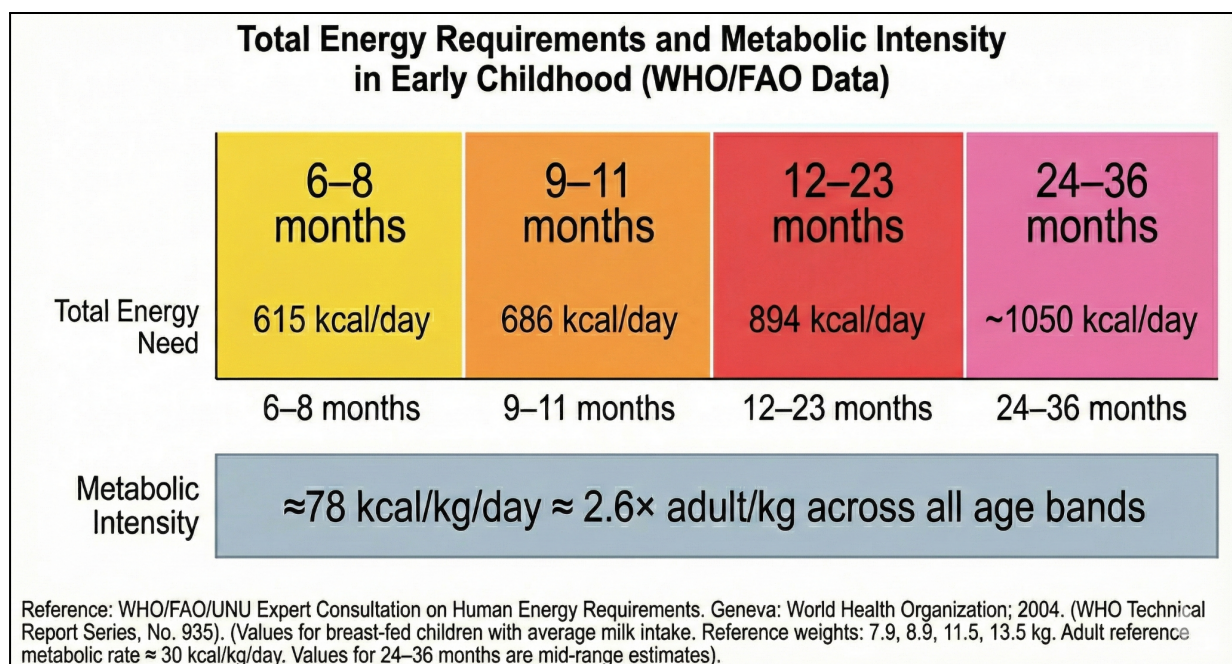
Energy Gap and Nutritional Requirements for Infants and Toddlers (6–36 Months)

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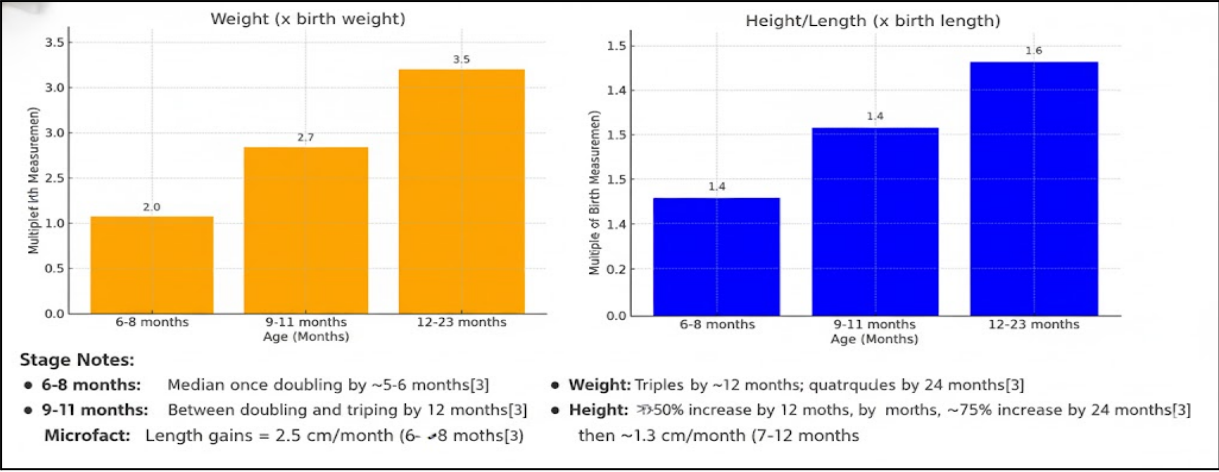
Expert Reviewer: Dr. Bakul Jayant Parekh, Hon. Secretary General, SAPA, India

Introduction

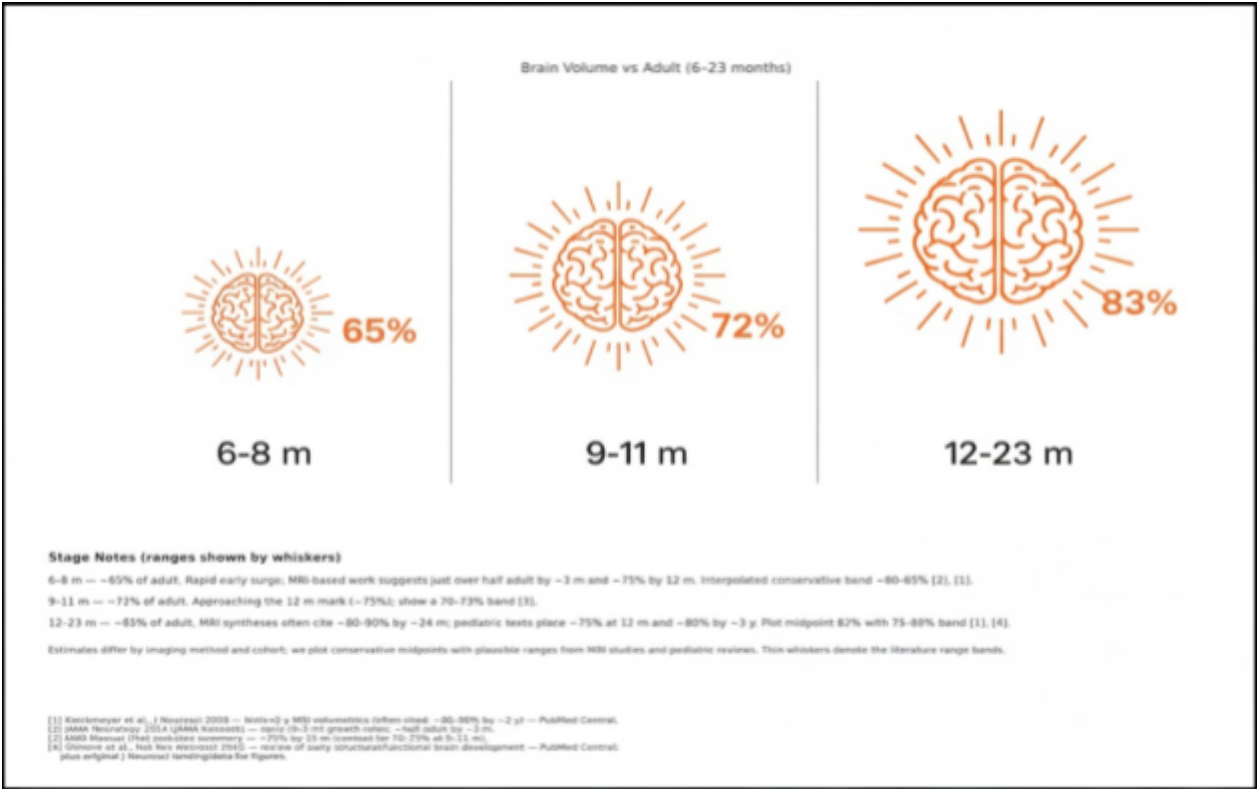
The first two years of life are critical for physical growth, brain development, and immunity. While breast milk remains an essential source of nutrition during this period, post 6 months of age, it must be complemented with appropriate solid foods to meet the high energy and nutrient demands of infants and toddlers. This is the period when the risk of nutrient & energy gap is highest. Thus, appropriate feeding practices is critical to ensure that solid foods along with breastmilk is able to meet the high nutritional needs of the growing body.



Rate of growth in first 2 years by Age Group

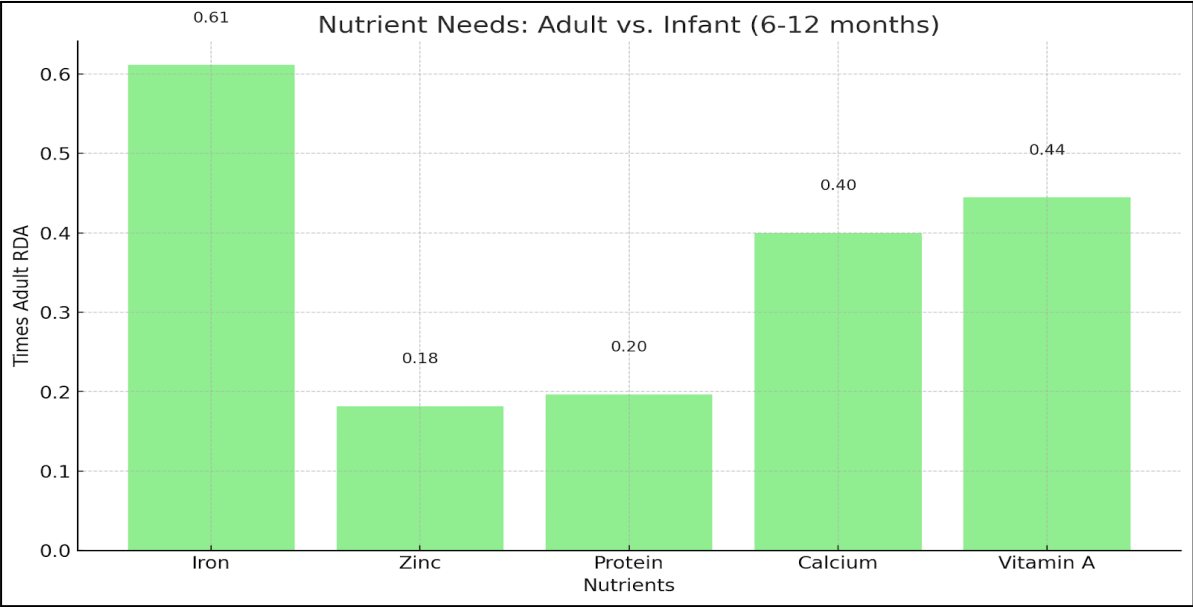


Brain Volume (6 - 23 months)



	Birth	6 months	1 year	2 years	3 years	4 years	5 years	5 -15 years	Adult
Acidic mucins									
Microbiota composition									
NK cells									
IgG									
IgM									
IgA									
Th1-mediated immunity									
T-cell-independent antibody response									

Immature system
 Developing system
 Adult



Here the graph shows the nutrient needs of infants (6-12 months) in terms of times the adult RDA (Recommended Daily Allowance) for various nutrients:

- Iron: 0.61 times the adult RDA
- Zinc: 0.18 times the adult RDA

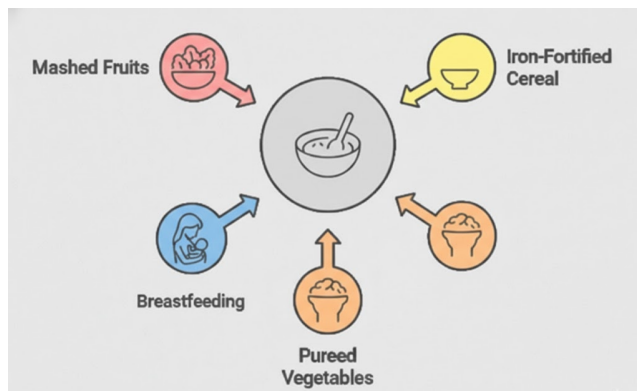
- Protein: 0.20 times the adult RDA
- Calcium: 0.40 times the adult RDA
- Vitamin A: 0.44 times the adult RDA

Table 1: Feeding Challenges and Actions

Age (months)	Common Challenges	Mitigation Actions	Challenges Faced by Parents
6-8 months	Late/incorrect complementary feeding	Start at ~6 m; thick, iron-rich fortified foods	late introduction due to cultural influence, avoiding certain food items due to regional preferences or myths, watery feed due to unawareness,
	Watery, low-energy gruels	Add oil/ghee/yogurt; avoid watery feeds	
	Grain-heavy, iron-poor bowls	Include heme iron; add vitamin C foods	
	Too few meals/snacks	2-3 meals + 1-2 snacks	
9-11 months	Slow texture progression	Advance weekly; introduce safe finger foods	late introduction due to cultural influence, avoiding certain food items due to regional preferences or myths
	Low energy density	Enrich with oil, nut paste, dairy, egg	

Age (months)	Common Challenges	Mitigation Actions	Challenges Faced by Parents
	Narrow flavor exposure	Repeat new foods calmly, 8-15+ tries	
	Following fads, not guidance	Follow pediatric advice; avoid restrictive rules	
	Too few meals/snacks	3-4 meals + 1-2 snacks	
12-23 months	Fussy eating; early give-ups	Offer neutrally; praise tasting; model eating Repeated exposure of at least 8-12 times;	avoiding certain food items due to regional preferences or myths
	Low dietary diversity	Rotate proteins, veg, grains across week	
	Snack displacement (biscuits/chips/SSB)	Water/milk; limit packaged snacks	
	Screen-led, irregular rhythm	Seat at table; fixed meal/snack times	
	Not adapting family foods	Iron protein + veg + grain; toddler texture	

Sample food items for 6–8 Months



Strategies for Picky Eating



Key Nutritional Strategies:

1. Nutritional counselling with a pediatrician at each visit (credible, consistent guidance)

At every contact (growth monitoring/immunization), review growth z-scores, diet diversity and frequency, and feeding difficulties; correct misinformation; and give brief, culturally appropriate take-home plans aligned with national/WHO guidance [1].

2. **Proactive conversation on complementary feeding (start with current practices, then coach)**

Begin with a caregiver 24-hour recall and check texture progression, meal timing, and milk feeds. Reinforce responsive feeding (hunger/satiety cues), screen-free meals, hygiene, and avoiding excess sugar/salt; tailor advice to family foods and caregiver constraints [1].

3. **Fortified baby cereals as an adjunct when intake is inadequate or growth lags**

Where meal frequency or dietary diversity is limited, or when a child shows a documented slowdown on the growth curve, the first step should always be counselling to strengthen breastfeeding practices and to enhance age-appropriate, iron-rich complementary foods prepared at home. If, after these foundational measures, the child still appears to need additional dietary iron, clinicians may consider inclusion of 1–2 servings of an iron-fortified infant cereal. Any fortified product should meet South Asian regulatory standards and be appropriate for the child's developmental stage, with follow-up monitoring of both growth and haemoglobin. [1,2].

4. **Supplementation: therapeutic for diagnosed deficiencies, plus routine preventive supplementation where indicated**

Use **therapeutic** doses (e.g., iron, vitamin D, B12, zinc) only for confirmed deficiencies under pediatric supervision; **also** follow **preventive** supplementation norms when risk is high or diet is insufficient—

- **Vitamin D:** 400 IU/day through infancy; continue in the second year if diet/sun exposure are inadequate (toddlers typically target ~600 IU/day from diet and/or supplements) [3,4].

- **Iron:** In settings with high anaemia prevalence, follow WHO guidance for preventive iron in 6–23 months and India's **Anaemia Mukht Bharat** program for 6–59 months (bi-weekly IFA syrup 1 mL = 20 mg elemental iron + 100 µg folic acid) [5,6].

- **Zinc (acute diarrhoea):** 10 mg/day (<6 months) or 20 mg/day (≥6 months) for 10–14 days [7].

Cultural Sensitivity

It is essential to align the complementary feeding practices to cultural & regional preferences to ensure smooth transition to family foods. Very often, due to unawareness or mis-information or generational myths, the child succumbs to high risk of nutritional deficiencies. These have short & long term impact generally reflecting as lag in growth standards, poor appetite, behavioural issues, poor immunity, delayed milestone achievement etc. In situations of high probability of nutritional deficiencies or growth lag, an adjunct like fortified baby cereals should be considered to prevent and to act as a bridge between local available, culturally acceptable foods & breastmilk. In situations, where the nutritional

deficiencies have progressed into severity, supplementation should be opted for correction of these nutritional deficiencies.

Conclusion

This article outlines a practical framework for meeting the energy and nutrient needs of children aged 6–24 months. Adequate nutrition during this critical window is best supported by continued breastfeeding together with culturally appropriate, diverse complementary foods prepared at home; where dietary gaps in iron or other key micronutrients persist despite such measures, appropriately regulated, age-specific fortified infant cereals may be used as an adjunct under professional guidance to help support optimal physical growth, cognitive development, and immune function.

Iron, calcium, zinc, Vitamin D, and B12 are essential nutrients, and strategies to prevent deficiencies, such as pairing iron with Vitamin C, offering fortified baby cereals is advised. Practical guidelines on responsive feeding practices, hydration, and hygiene underscore the importance of creating a safe, stress-free environment that fosters healthy eating habits and long-term well-being.

Pediatricians play a pivotal role in empowering parents by offering consistent monitoring, tailored advice, and support in addressing challenges like picky eating, limited dietary diversity, or nutritional inadequacies. Through collaboration between healthcare professionals and families, these strategies can lay the foundation for lifelong health, reducing the risk of growth faltering, anemia, and other nutrition-related challenges.

References Liat for Energy Gap and Nutritional Requirements for Infants and Toddlers (6–36 Months)

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