The Current Evidence and Practical Advice for the Transitional Feeding of Infants and Toddlers

By Meghan McMillin, MS, RD, LDN, CSP, IBCLC

Bio

- Registered Dietitian Nutritionist
- International Board Certified Lactation Consultant
- Board Specialist in Pediatric Nutrition
- Freelance writer and public speaker
- Owner of Mama & Sweet Pea Nutrition
Objectives

1) Explain current and changing evidence-based recommendations for transition infant feeding.
2) Describe common barriers or issues that families can face while transitioning infants to foods.
3) Provide practical examples of how families can overcome these barriers to better align with current evidence-based guidelines for feeding.

Introduction

- Infants and toddlers have unique nutritional needs
- Early nutrition affects health outcomes later in life:
  - Obesity
  - Metabolic Disease
  - Sleep Apnea
  - Food allergies & Asthma
  - Autoimmune Diseases
- Public Health Issue
  - In 2015-2016, 18.5% of 2-19 year olds in US were considered obese (13.7 million children & adolescents)
  - Childhood obesity responsible for $12-19 billion lifetime medical costs.
  - Increased hospital admissions and missed days of school
Lack of Nutritional Guidelines

- Infants and toddlers not currently included in the Dietary Guidelines for Americans
- Leaves parents fending for themselves
- Contradictory information between and within governing bodies

Pregnancy & Birth-24 Project

- Agricultural Act of 2014, mandated that the Dietary Guidelines expand to include dietary guidance for infants and toddlers (from birth to age 24 months), as well as women who are pregnant, beginning with the 2020-2025 edition.
- Conducted systematic reviews on diet and health for this population - published in 2018.
  1. Pregnancy
  2. Infant Milk Feeding Practices
  3. Complementary Feeding
  4. Flavor Exposure and Feeding Practices
- Reviews will be used to help guide the 2020-2025 Dietary Guidelines
WHERE DO WE START?

Exclusive Breastfeeding

“infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health…continues for up to two years of age or beyond.”

World Health Organization (WHO) 2002

“promote and support exclusive breastfeeding for 6 mo and continuation of breastfeeding for 1 y or more.”

Institute of Medicine (IOM) 2011

“recommendation of exclusive breastfeeding for about 6 months….with continuation of breastfeeding for 1 year or longer as mutually desired by mother and infant.”

American Academy of Pediatrics (AAP) 2012
WHEN TO TRANSITION?

Ideal Age

- When to start is one of the biggest concerns for parents
- Lots of confusion and conflicting information on recommendations
- Four or six months?
Then: 4 Months

- 2000, AAP’s recommendations on complementary feeding: “recommend introduction of solid foods at 4 to 6 months of age, exclusive breastfeeding for the first 4 to 6 months of age”

- 2000, WHO’s document on complementary foods: “complementary foods should be started when the baby can no longer get enough energy and nutrients from breast milk alone. For most babies this is between 4 and 6 months of age”

Now: 6 Months

“Practice exclusive breastfeeding from birth to six months of age, and introduce complementary foods at six months of age while continuing to breastfeed.”
- WHO 2002

“Support for this recommendation of exclusive breastfeeding (6 months) is found in the differences in health outcomes of infants breastfed exclusively for 4 vs 6 months.”
- AAP 2012
Why the change? Research!

- **Improved infant outcomes**
  - Gastrointestinal disease
  - Otitis Media
  - Respiratory illnesses
  - Atopic disease

- **Improved maternal outcomes**
  - Delayed menses
  - Postpartum weight loss

Is Age the Defining Factor?

- **Signs of Readiness**
  - Head control
  - Sit relatively unassisted
  - Loss of tongue thrust reflex
  - Can pick up objects and bring towards mouth
  - Opens their mouth for food

- **Not Signs of Readiness**
  - Size/Weight
  - Sleep patterns
  - Teething
  - Shows interest in what your eating
Barriers and Solutions

Potential Challenges
- Conflicting information
- Feeding cues/ signs of readiness
- Concerns about growth
- Mothers returning to work
- Social pressures
- Food allergy risk

Solutions
- Understanding potential risks of introducing too early
- Educating on benefits of EBF for 6 months
- Assuring growth is on proper trajectory
- Education & support from a trusted health care provider
Background on Food Allergies

- 1 out of every 13 children in America has food allergies (6 million)
- The prevalence of food allergy in children increased by 50 percent between 1997 and 2011. (CDC)
- Childhood hospitalizations for food allergy tripled between the late 1990s and the mid-2000s.
- Caring for children with food allergies costs U.S. families nearly $25 billion annually.

Top 8 Allergens

- Dairy
- Egg
- Fish
- Seafood
- Soy
- Tree Nuts
- Peanuts
- Wheat
What We Used to Think

- Delayed introduction was the best strategy
- AAP 2000:
  - Maternal avoidance (pregnancy and lactation)
  - Cow’s milk at 1 year
  - Egg at 2 years
  - Tree nuts, peanuts and fish at 3 years
- AAP 2008
  - Updated statement saying no clinical evidence to suggest delaying helped
  - No evidence that maternal avoidance helped
  - Statement lacked actual direction on when and how to introduce allergens

What We Now Know

- Early introduction is key to prevention and delayed introduction may have increased prevalence
- 2017: AAP endorsed guidelines put forth by the National Institute of Allergy and Infectious Diseases that recommend early introduction of peanut protein for infants who are at increased risk of developing the allergy.
- 2019: AAP updates clinical guidelines from 2008: “there is no evidence that delaying the introduction of allergenic foods, including peanuts, eggs, and fish, beyond 4 to 6 months prevents atopic disease. There is now evidence that early introduction of peanuts may prevent peanut allergy.”
Why the Change? Research!

- **Learning About Early Introduction of Peanuts (LEAP) study, 2015**
  - Infants 4-11 months of age & moderate-to-severe eczema and/or egg allergy
  - Skin Prick Test (SPT) to determine current peanut allergy status
  - 640 infants (median age 7.8 months) randomized into 2 groups
    1. Consume 2 grams peanut 3 days/week until age 5
    2. Peanut avoidance until age 5
  - Results:
    - Avoidance group: 17% developed allergy by age 5
    - Consumption group: 3% developed allergy by age 5

- *Other recent studies have shown similar results!*

What are the guidelines?

**High Risk**
- Infants with severe eczema and/or egg allergy be introduced to peanut as early as 4-6 months of age
- Allergy testing is strongly advised prior to peanut introduction for this group.
- 6-7 grams over course of week for 5 five years

**Mild-Moderate Risk**
- Infants with mild to moderate eczema should be introduced to peanut around 6 months of age
- Testing or medical evaluation is suggested, but not necessary
- No specific guidelines on amounts

**Low-No Risk**
- Infants with low to no risk can introduce peanuts “freely” with other solid foods
Barriers and Solutions

**Potential Challenges**
- Fear
- Outdated information
- Signs of readiness
- Other allergies in house

**Solutions**
- Assess and categorize risk
- Collaboration with allergist
- Education & support from a trusted health care provider

NUTRITION
Macronutrient Needs

<table>
<thead>
<tr>
<th></th>
<th>7-12 Months</th>
<th>1-2 Years</th>
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<tbody>
<tr>
<td>Calories</td>
<td>720 kcal/day (EER)</td>
<td>990 kcal/day (EER)</td>
</tr>
<tr>
<td>Protein</td>
<td>11 g/day (RDA)</td>
<td>13 g/day (RDA)</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>95 g/day (AI)</td>
<td>130 g/day (AI)</td>
</tr>
<tr>
<td>Fat</td>
<td>30 g/day (AI)</td>
<td>30-40 g/day (AI)</td>
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Important Micronutrients

- **Vitamin D**
  - Bone formation, tooth mineralization, immunity
  - 7-12 months: 400 IU, 1-2 years: 600 IU

- **DHA**
  - Cognitive function, visual acuity
  - 7-12 months: 0.5 g, 1-2 years: 0.7 g

- **Iron**
  - Cognitive function, growth, red blood cell production
  - 7-12 months: 11 mg, 1-2 years: 7 mg

- **Zinc**
  - Growth, immunity, taste, DNA & protein synthesis
  - 7-12 months: 3 mg, 1-2 years: 3 mg
First Foods

• Prioritize Iron and Zinc
  • Red meat & poultry
  • Egg yolk
  • Sardines & oysters
  • Beans
  • Pumpkin
  • Greek Yogurt
• Supplement with other nutrient dense foods
  • Fruits and Vegetables
  • Avocado
  • Salmon

Sugar and Salt

• 84.4% of infants and toddlers consumed added sugars on a given day. (NHANES 2011-2016)
  • Main Sources: Yogurt, juice, snacks, bakery goods
• AAP: added sugars avoided for children under 2 years of age

• Average intake of sodium for 6-12 months – 518mg/d; 12-24 months – 1709 mg/d
• AI for 7-12 month old is 370 mg; 1-3 year olds is 1000 mg
  • Main sources: commercial baby food, soup, pasta mixed dishes, milk, cheese, sausages
Beverages

- Juice
  - Previous - no juice for children younger than 6 months of age, 4-6 ounces daily for children ages 1-6 years (no specifics for 7-12 months)
  - Updated in 2017 - The AAP recommends no fruit juice to infants under 1 year old, no more than 4 ounces of 100% fruit juice a day for children ages 1 through 3 years

- Milk
  - No milk under the age 12 months
  - 12-24 months: 2-3 cups whole milk

Barriers and Solutions

<table>
<thead>
<tr>
<th>Potential Challenges</th>
<th>Solutions</th>
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<tbody>
<tr>
<td>Access</td>
<td>Thorough assessments to identify barriers</td>
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<tr>
<td>Money</td>
<td>Nutrition &amp; cooking education</td>
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<tr>
<td>Cooking ability</td>
<td>Guidance on lower-cost foods/ budgeting</td>
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<td></td>
<td>Provide resources on assistance programs</td>
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<td></td>
<td>Education &amp; support from a trusted health care provider</td>
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DOES THE METHOD MATTER?

Different Methods

Traditional or Conventional
- Purees with progression towards other textures
- Spoon
- Adult in charge (?)

Baby Led Weaning
- Variety of textures from start
- Hand or utensils
- Baby in charge
Responsive Feeding

- Learning your baby’s cues for hunger and for being full, and then responding appropriately to those cues.
- This response includes the provision of appropriate and nutritious food in a supportive manner, while maintaining an appropriate feeding environment.
- Associated with:
  - Better self-regulation
  - More adventurous eater
  - Better growth outcomes

Feeding Cues

- **Signs of hunger**
  - putting hands in or near mouth
  - making sucking noises
  - more active, moving her hands and feet
  - crying is a late sign
- **Signs of being full**
  - stopping and starting feeding frequently
  - spitting out or ignoring the bottle, breast, or food
  - turning the head away
  - slowing down, or falling asleep
Barriers and Solutions

Potential Challenges
- “Are they getting enough”
- Parental comfort level
- Childcare
- Mess

Solutions
- Counseling on feeding cues & responsive feeding with any method
- Assuring growth is on proper trajectory
- Education on gagging/choking
- Having childcare specific information/resources available
- Education & support from a trusted health care provider

Key Takeaways
- Transition to solids around 6 months with attention to signs of readiness
- High risk for peanut allergies may benefit from earlier introduction – work with MD
- Unique nutritional needs especially iron and zinc
- Limit sodium, sugar and fruit juice
- Responsive feeding is best regardless of feeding method used
Thank you!