Summit of Breastfeeding and Early Childhood Nutrition in the first 1000 days

Infant Feeding and Effective Parenting

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Outline

• What is Infant Feeding?

• Infant feeding and future health

• Infant feeding and eating behaviour

• Parenting and infant feeding
What is Infant Feeding?

• *Breastfeeding* is an ideal food for the healthy growth and development of infants

• Infants should be *exclusively breastfed for the first six months of life*

• Beyond 6 months, infants should receive *nutritionally adequate and safe complementary foods* while *breastfeeding continues for up to two years of age or beyond* in order to meet their evolving nutritional requirements
Food Transition

Fluid diet => semi-solid food => solid food

• A process with exploration and adaptation
• Introduce a variety of nutritious foods and flavours

• Reluctance to try new foods is usually low at weaning but rapidly rises to a peak between 2 and 6 years

Weaning period at infancy =
Golden opportunity to introduce new food types and flavours
Transition period with complementary feeding

• **Timely**
  – introduced when the need for energy and nutrients exceeds what can be provided through exclusive and frequent breastfeeding

• **Adequate**
  – provide sufficient energy, protein and micronutrients to meet a growing child’s nutritional needs

• **Safe**
  – hygienically stored and prepared, and fed with clean hands using clean utensils and not bottles and teats

• **Properly fed**
  – given consistent with a child’s signals of appetite and satiety, and that meal frequency and feeding method – actively encouraging the child, using fingers, spoon or self-feeding – are suitable for age
Infant Feeding and Future Health

• The infant and toddler period is an opportune time to promote *food acceptance and healthy diets*, such as fruit and vegetables

• *Early eating pattern*
  – affects later outcomes and behaviour

• *Epigenetic processes affected by diet*
  – shape individual differences in risk of obesity and related metabolic outcomes
How do we know when is the time to introduce solid food?
Developmental clues for solid food feeding

- **Able to sit up** and take an active part in eating

- **Reduce tongue-thrusting reflex** so that not pushing food out of the mouth automatically

- **Palmer or pincer grasp** to allow hand or fingers to pick up food

*Usually around 6 months old*
Food Introduction

• Introduce solid foods around 6 months of age
  – Solid food before 4 months may be associated with increased weight gain and adiposity

• Expose baby to a wide variety of healthy food

• Expose baby to a variety of textures
  – Food textures should be suitable to the infant’s developmental stages
  – Moving from pureed to lumpy to normal textures during the 6-12 month

• Well Visit at 2 mo, 4mo, 6mo, 9mo and 12 mo
  – to provide support and advice to parents on infant feeding

American Academy of Pediatrics: Guideline on Infant Feeding
Onset and Patterns of Risk Behaviors

This timeline illustrates when and what kind of risk behaviors associated with overweight and obesity develop during infancy. Use this tool to help prioritize anticipatory guidance for families.

To use: Point at the timeline dots below to see valuable information, click and hold a dot for Evidence. Important patient care information is available using the Acute/Medical Opportunities button at the bottom left. There is a close box at the top right of this window.

Foster Self Feeding

• Encourage *self feeding around 8-9 months*
  – Babies are encouraged to *use spoons, cups and fingers* to feed themselves

• Parents should *recognize hunger and satiety cues*

• Parental barriers on self feeding:
  – Time
  – Cleanliness and messy
  – Wasting food
Healthy Drinks

• *Milk and water* are the best “Healthy Drinks” to infants

• Avoid introducing
  – *Juice* until toddler stage or at least 6-9 months old and limit consumption to 4-6 ounces only per day
  – *Sugar-sweetened beverages*
Infant Feeding and Eating Behaviour
Learning to eat in early childhood

Traditional feeding practices

Vs

3 forms of learning behaviour:

Familiarization

Associative learning

Observational learning
Traditional feeding practices

- Offering food as a first response to infant crying and distress
  "feeding to soothe" (FTS)

- Frequent feeding
  - when food is available
  - providing large portions
  - offering preferred foods
  - pressuring children to eat what is given to them

- May compromise the development of self-regulation of intake
  - eating is initiated in response to hunger
  - terminated in response to satiation signals

Leann L Birch and Allison E Doub. Learning to eat: birth to age 2 years
Learned feeding behaviour

(I) Familiarization
(II) Associative learning
(III) Observational learning
(I) Familiarization

A process of acquiring familiarity with objects, people, actions, and their consequences
- what becomes familiar tends to become preferred,
- and the unfamiliar tends to be avoided and disliked

• Milk
  – the single and first food for infants => easily familiar
  – During weaning, becomes the standard against all other new food and flavours

• For formula-fed infants => only formula flavours are familiar

• For breastfed babies => easily to be familiar with a variety of food flavours through breast milk and different variety of flavours from the mothers’ diet

“Flavour Bridge” => easing the transition to the foods of adult diet

Predisposition to Basic tastes

• Equipped with predispositions to prefer or reject the basic tastes

• Unlearned positive responses to sweet, salty, and umami tastes and rejection of bitter and sour tastes

• Relatively easy to establish unhealthy dietary patterns
  – prefer food high in sugar, salt, and energy
  – more difficult to accept vegetables or other taste unless with repeated exposure

• Initial responses to basic tastes can be modified through subsequent experience with food

• “Tasting exposure” has the strongest association with liking as compared to “smelling” or “looking exposure” of new food
Neophobia

- Children tend to show *increases in neophobia with increasing age*, at least until middle childhood.

- The neophobic response is *a normal reaction to new food*, not necessarily a reflection of “picky eating”.

- On average, children will accept a new food type *after 10-15 exposures*.

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(II) Associative Learning

• Learned liking or disliking of foods can occur through the *association of food or flavour with the affect generated by an unconditioned stimulus*

• Associations *with the emotional tone of social interactions* during feeding can shape food likes and dislikes

• Preschool children’s liking for familiar snacks was increased when the food was either given *as a reward or paired with positive adult attention*

*Parental feeding style and caregivers’ emotional tone during feeding influence liking and intake of foods during the 0- to 24-mo period*
(III) Observational Learning

• **Social influence** provides another powerful tool for promoting tasting and intake of novel foods even for very young children.

• **Adult Modeling**
  – Children tend to taste unfamiliar foods more readily when they observe adults eating them.
  – Children accepted more novel food in the “same” colour as adults eat.

• **Peer modeling**
  – Children tend to eat what their peers eat.

Parenting and Infant Feeding
Effects of Genetics and Environment on Infant Feeding

- Parents provide both **genes and environments** during children’s early development.

- Genes are expressed in family contexts differing in **foods available, routines around food and eating, and early feeding practices**.
Infant Feeding and Parental Modelling

• Parents serve as **role models** for children’s eating
  – Teach *eating behaviours* (eg, how to use a spoon)
  – Determine *types of food and portion* offered
  – Select the *timing and social context* of meals
  – Shape *other contexts* that influence eating behaviour
    eg, access to screen time, active play, and sleep schedules

• Parents, close family members and care-taker play a vital role in modelling behaviours
  – *Nutrition, physical activity, and sedentary behaviours* in children
  – Even babies observe their parents’ behaviour
Set up Important Healthy Routines

- **Regular meals**
- **Daily physical activity**
- **Adequate sleep**

• Starting in infancy, parents should nurture routines for
  • **exposure to healthy life-style**
  • **Prevention of obesity and associated behaviours**
  • **Deciding how and when to spend their free time**
  • **Parental eating practices such as choice of food and beverage consumption**

• **Shape the future eating behaviour of infants and children**
Building a Team

• Infants learn to like their familiar family environment
• Any behavioural pattern established will have life long effects
  • Eg) High energy, dense, sweet, and salty snacks leading to unhealthy food preferences

• Grandparents are important team partners
  • more likely to consider their grandchild’s food preferences
  • prefer traditional foods
  • may have different concepts on “healthy baby”

• Assess family support and Identify barriers around healthy eating, routines, and activity
• Come up with consensus among family members on a common goal of healthy eating and living
Food Safety

• *Store* food safely and *prepare* them *hygienically*
• *Do not feed honey* to infants aged <12 months *to prevent botulism*
• *Cook all eggs thoroughly* and do not use uncooked products containing raw eggs *to prevent salmonella poisoning*

• *Avoid hard, small, round and/or sticky solid foods* to prevent choking and aspiration
• *Avoid* feeding an infant using a ‘propped’ *bottle*
• Ensure that infants and toddlers are *always supervised during feeding*
Other Special Concerns on Infant Nutrition

• **Food allergies**
  – Breastfeeding reduces risk of allergy
  – No evidence that delaying the introduction of solid foods beyond 6 months reduces the risk of atopic disease

• **Colic**
  – Changes in diets and restrictions on individual foods have had limited success in the treatment of colic

• **Constipation**

• **Diarrhoeal disease**

• **Dietary fat**
  – is an important source of energy and provides essential fatty acids

• **Dental caries**
  – avoiding exposure of teeth to sugar-containing foods and liquids or sleeping with sucking bottle

EAT FOR HEALTH. Infant Feeding Guidelines. Australia National Health and Medical Research Council (2013).
Practical Tips

• Making *eating a pleasant experience*

• Allow *eating at a achievable task*

• Allow *different varieties*

• No forced eating

• Encourage *self feeding and active participation*

• Don’t turn dining table to a battle field
Making eating a pleasant experience
Allow eating at a achievable task
Be creative in food preparation

• Try to use *different colour, combination and utensils* to attract children to try new food.
Techniques to introduce unfamiliar taste

- The *pairing of novel flavors with familiar ones* is another form of *associative learning* that can influence the development of food preferences in children

- Introduce *novel food and unfamiliar taste many times*
Allow different varieties
Encourage self feeding and active participation
Importance of Family Meal

• Allow *learning from adult model and peer model*
• Allow *proper training of eating behaviour*
• A time for *family sharing and bonding*
Summary

- **Weaning** during infancy is an important period to introduce new food types and flavours.
- **Early eating behaviour** shapes future eating habits and preferences which will affect long term health.
- **Parents and care takers** are crucial role models for infants to learn the proper eating behaviour.
- **Family meal** is the best time to train and modify eating habits and consolidate bonding among family members.