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Starting Solids with the Breastfed Baby *A Common Sense Approach to Complementary Feeding*



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Objectives

- Review current infant feeding recommendations, and the role of complementary foods for breastfed infants.
- Explain infant-led complementary feeding for breastfed infants.
- Recognize typical developmental milestones indicating readiness.
- Discuss concerns of complementary feeding, including choking, food allergies, and food safety.

Current Infant Feeding Recommendation

Per AAP policy statement[†]

- **Exclusive** breastfeeding is recommended for about first 6 months
- Complementary foods introduced while breastfeeding
- Continuation of breastfeeding “through the first year and beyond as more and varied complementary foods are introduced”

[†]Breastfeeding and the Use of Human Milk, Pediatrics, March 2012, Vol 129(3)

Food and the Infant Gut

- Introduction of food impacts the gut flora, transitioning from the microbiota profile of breastfed infant toward that of a formula-fed infant
- At birth, infant's intestinal tract is permeable, as the tight junctions have not yet closed; introducing a foreign substance (i.e. anything other than breastmilk) prior to closure will lead to inflammation
- By delaying introduction of complementary foods until infant demonstrates readiness, the GI tract is likely ready as well

Benefits of a Common Sense, Infant Led Approach

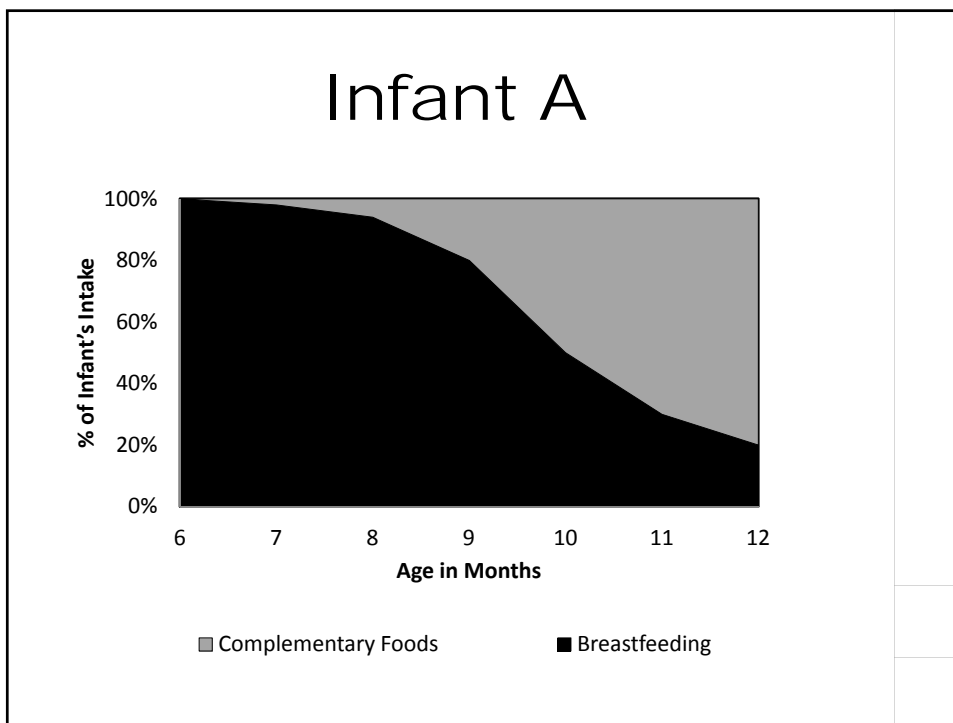
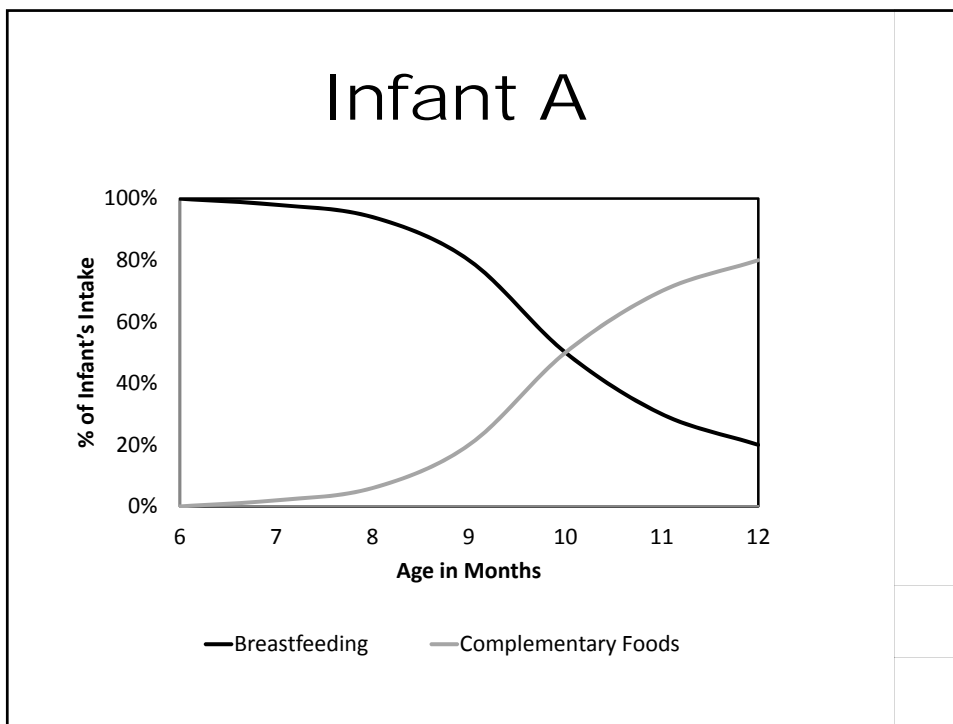
- Continues feeding as an infant led process, just like breastfeeding
- **Does not equate with weaning**, so will not disrupt breastfeeding
- Introduces complementary foods only when infant is developmentally ready
- Follows normal infant developmental milestones

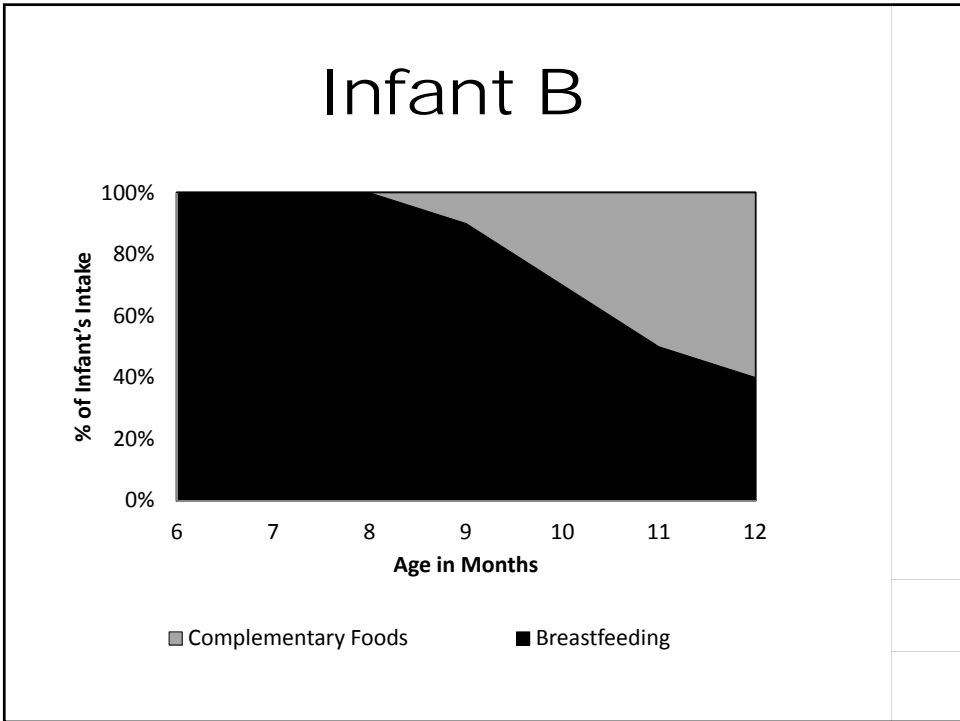
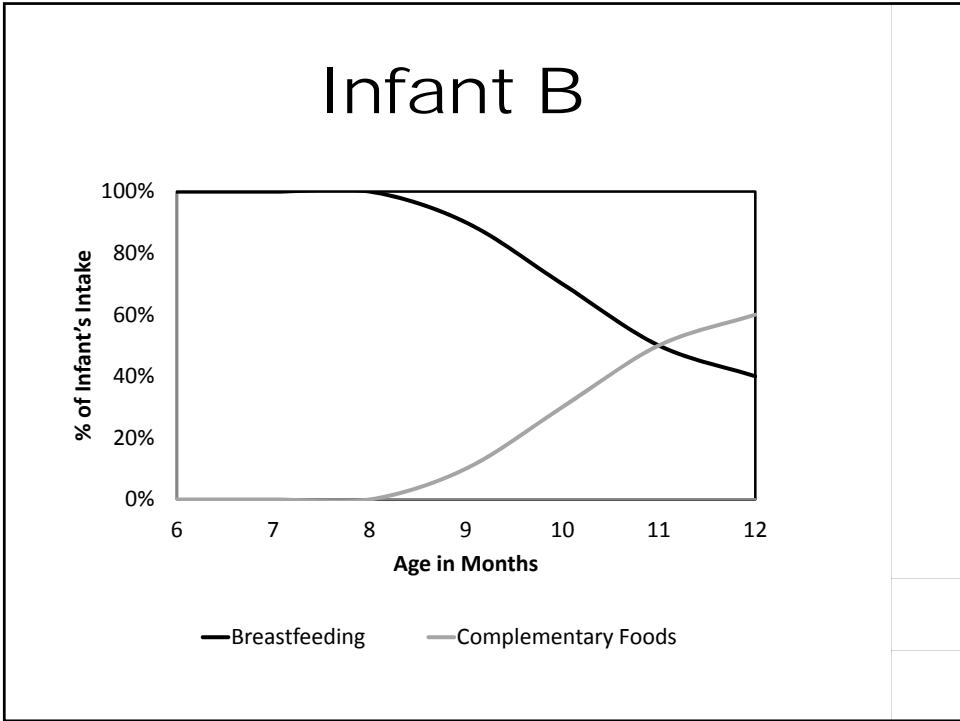
Benefits of a Common Sense, Infant Led Approach

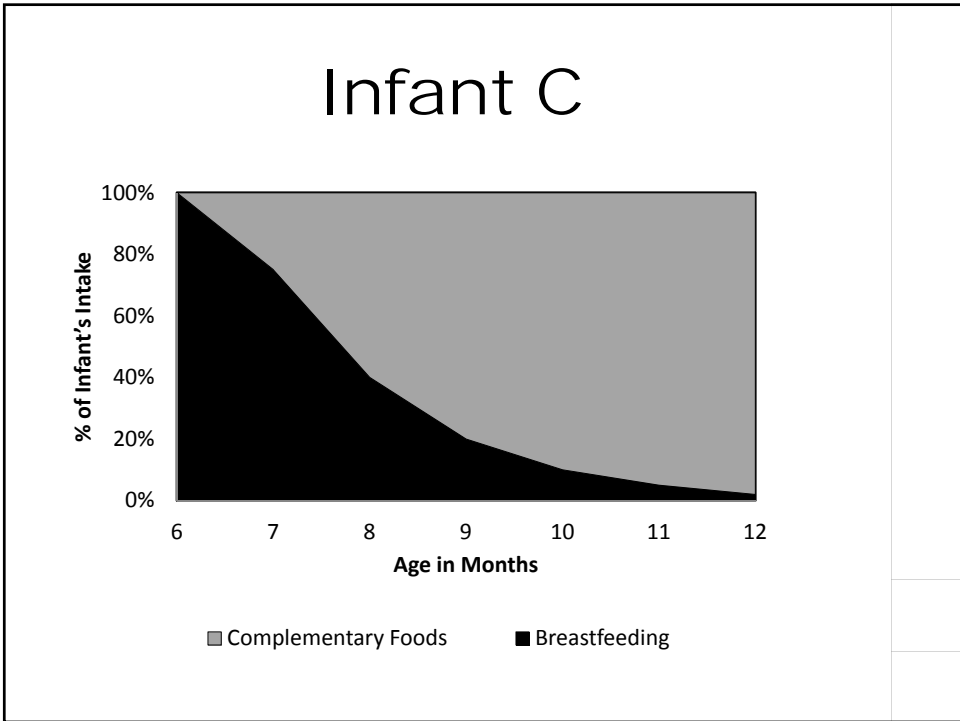
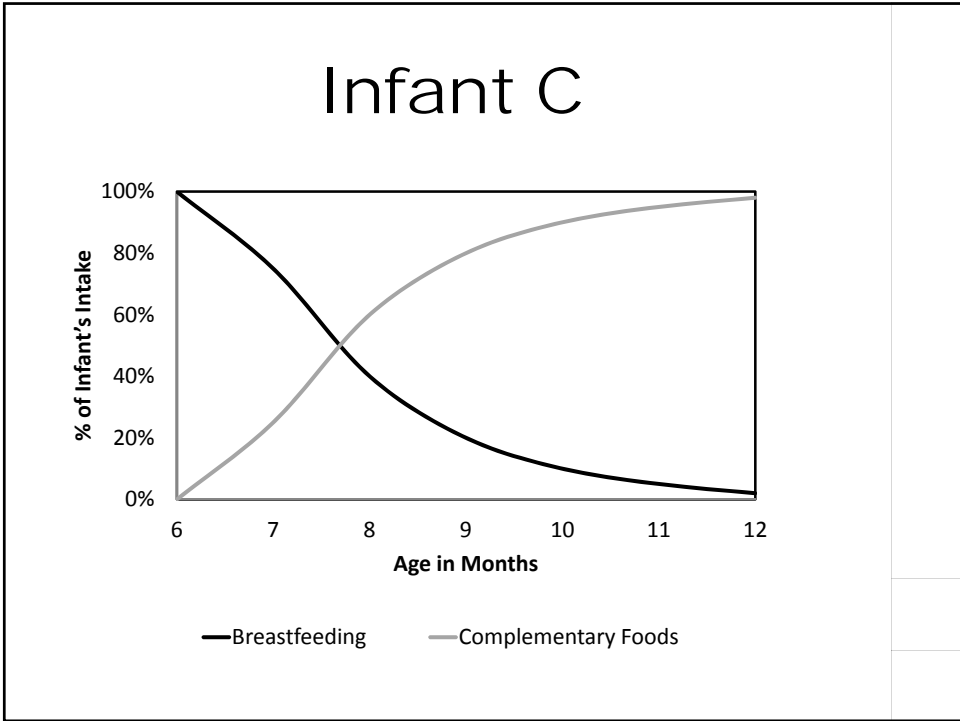
- Develops fine motor skills while learning to eat
- Avoids overfeeding
- Uses common sense, not rules
- Avoids texture aversion
- Infants learn to chew from the start
- Uses whole foods rather than processed foods

Complementing, not Weaning

- Food is the complement, not the replacement, to breastfeeding
- Breastfeeding is not disrupted or discontinued
- Initial intake of solid foods is minimal
- Breastfeeding continues, typically as a significant portion of an infant's nutrition







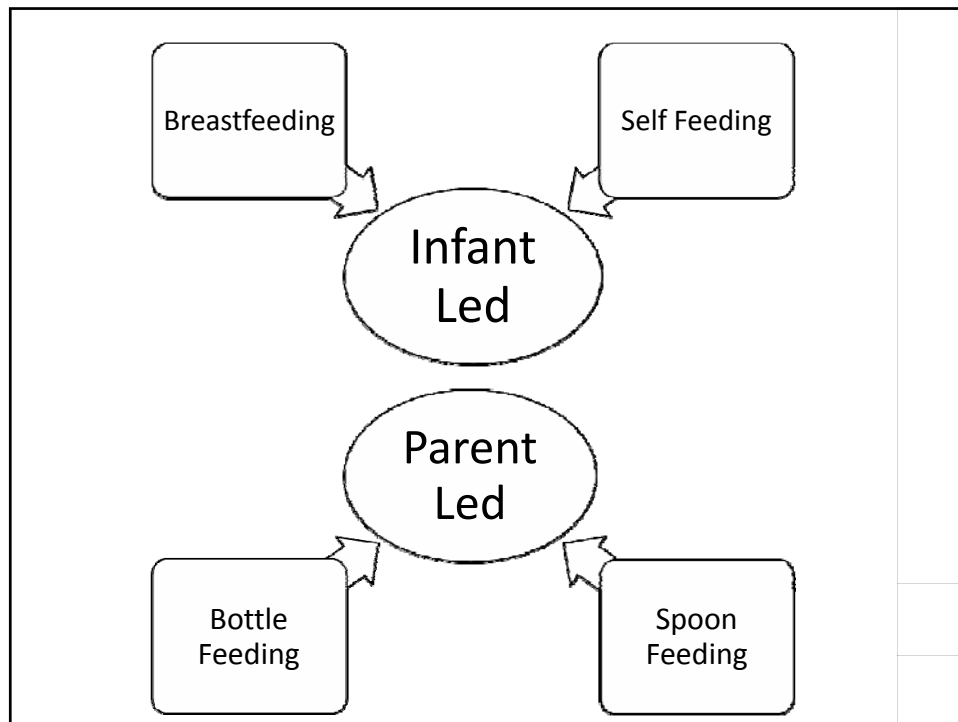
Complementing, not Weaning

- Again, complementary feeding does not replace breastfeeding
- Amount and variety of complementary food varies
- Breastmilk continues to complete the diet



Infant Led Feeding

- Like infants take the lead with breastfeeding, they are also allowed to lead with solid foods
 - Timing and pace determined by the infant
 - Allows infant to follow satiety cues
 - Avoids overfeeding/overeating
 - Begins lifelong healthy relationship with food



Typical Developmental Milestones

- Gag reflex lessens – 6 months
- Loss of extrusion (tongue thrust) reflex – 6 months
- Sitting
 - With support – 6 months
 - Without support – 9 months
- Reaching for objects
 - Swiping reach – 4 months
 - Purposeful reach with one hand – 6 months
- Grasping objects
 - Raking – 6 months
 - Pincer – 9 months
- Transferring objects from hand to hand – 6 months

Developmental Readiness

- Look for developmental signs of readiness:
 - Interest in food – usually begins first
 - Sitting up with posterior support
 - Reaching for and picking up objects
 - Loss of tongue thrust reflex

He's sitting up.
Or is he?
Is he ready?

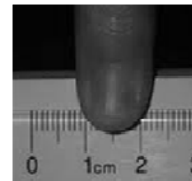


Getting Started

- Initial introduction at age 6 months
 - Not about nutrition or calories
 - Just for practice/fun
 - Oral exploration of new flavors and textures
- Bring infants to the table
 - Meals are social
 - Learn by imitation and practice

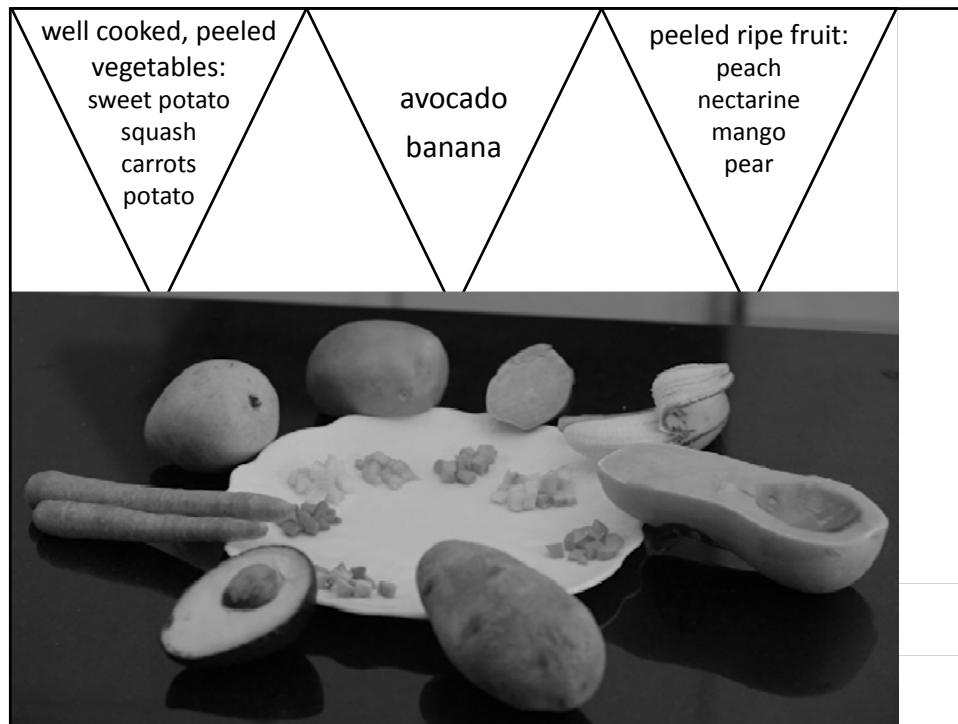
Getting Started

- Use fresh foods when possible
- Choose foods that make sense
 - Typically eaten by the family
 - Seasonal
 - Nutrient-dense
- Select first foods based on texture, i.e. soft enough to easily smash
- Cut to appropriate size ($\leq 1\text{cm}$)



Getting Started

- Don't rely on rules, just use common sense
- The initial focus is only on learning to eat, so no need to measure or count
- Throw out these old adages
 - “One color at a time”
 - “Vegetables before fruit”
 - “One new food a week”
- Good “starter” foods are typically fruits and vegetables



Advance as Tolerated

- Once infants have ***learned to self feed***, introduce more variety
 - Increasing texture
 - No “stages” to follow
 - Eat from family meal
 - Foods with multiple ingredients are fine
 - Include iron-rich foods

Important Dietary Minerals

- Iron stores in healthy full-term breastfed infants last approximately 6 months
- Beyond 6 months, infants usually need a dietary source of iron and zinc in addition to breastmilk
 - Include iron-rich foods once infant is eating
 - Iron-rich foods typically contain zinc as well (e.g. meat, seafood, beans)
 - Mixed (non-vegetarian) diets have higher iron bioavailability
 - Increase absorption of dietary iron by also eating foods rich in Vitamin C (ascorbic acid)
 - Calcium may decrease absorption

Sources of Iron

Heme Iron	Non-Heme Iron
Derived from hemoglobin & myoglobin (animal sources)	Derived from plants (also contained in animal sources)
meat poultry fish seafood	lentils chickpeas spinach & leafy greens soybeans/tofu molasses beans iron-fortified foods
Higher bioavailability More readily absorbed (15-35%)	Not as well absorbed (2-20%)

Suggestions for More Foods

- Ground meat
- Fish
- Eggs
- Pasta
- Rice
- Tofu
- Other fruits and veggies
- Soup/stew
- Casserole
- French toast
- Pancakes
- Yogurt



Use with Caution

- Foods with indigestible parts
 - Foods containing seeds
 - Fruit with skin (e.g. apples, grapes)
 - Legumes with intact hulls (e.g. peas, beans, lentils)
 - Grains with hulls (e.g. corn)
- Acidic foods – may cause diaper rash
 - Citrus fruits, tomatoes, pineapple, kiwi

Avoid Choking Hazards

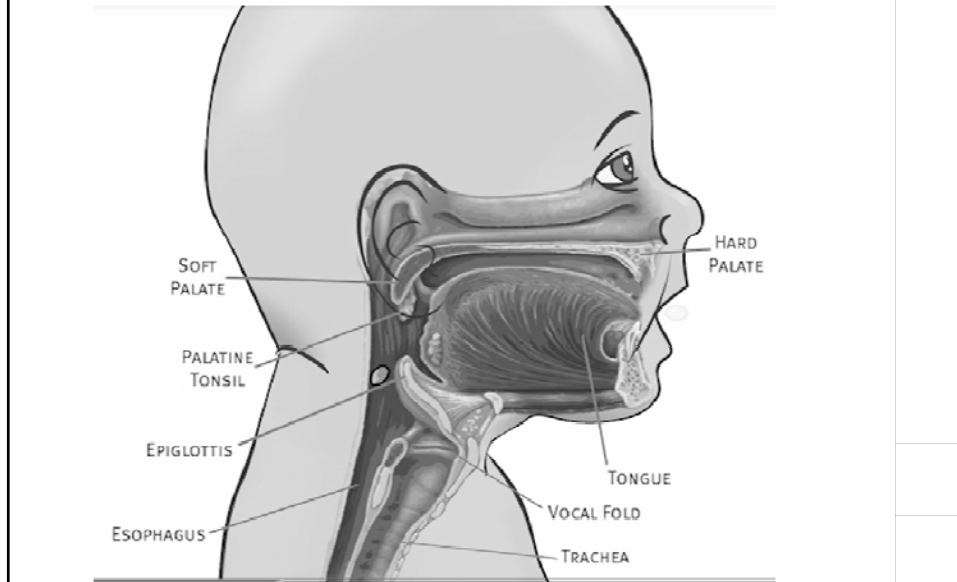


- Peanuts, nuts and seeds
- Whole grapes or cherry tomatoes
- Raw vegetables (e.g. carrots)
- Hot-dog shaped foods cut into rounds
- Chunks of cheese or meat
- Chunks or spoonfuls of peanut or other nut butters
- Popcorn

Gagging, Aspirating, and Choking

- The term “choking” is used loosely to describe all 3 of these physiologic processes
- **Gagging** is a normal protective reflex triggered by an object in the back of the throat that is too large to swallow
 - Infants have a more sensitive gag reflex

Gagging, Aspirating, and Choking



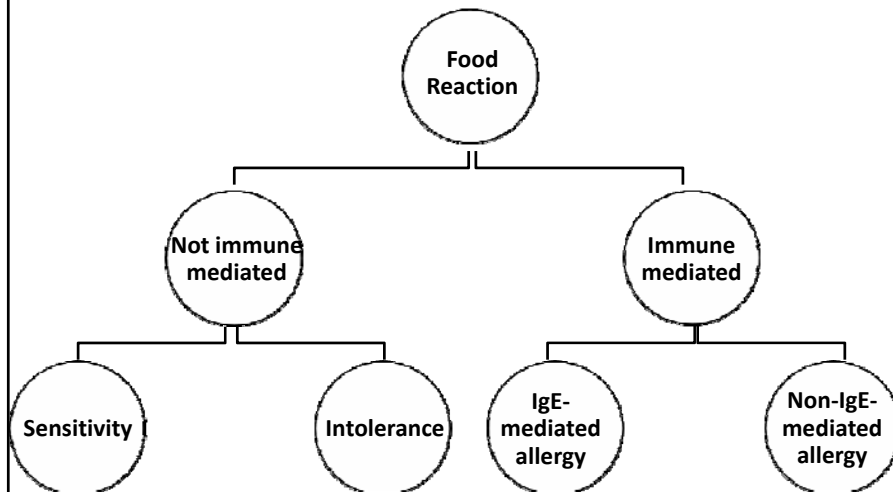
Aspirating and Choking

- **Aspirating** occurs when food or liquid enters the trachea instead of the esophagus
 - “goes down the wrong pipe”
- **Choking** occurs when an object obstructs the airway, and there will be no coughing or breathing

Gagging, Aspirating, and Choking

- **Only choking requires intervention**
- Infants should always be supervised while eating
- Avoid choking risk by choosing and offering foods appropriate in size and texture for infant's age and development
- Caution older siblings

Sensitivity, Intolerance, or Allergy?



Food Sensitivity

- **Food sensitivity:** eating a particular food causes an unpleasant reaction in the body
 - Typically causes gastrointestinal (GI) symptoms such as nausea, gas, abdominal pain, diarrhea
 - Reactions are not necessarily the same with each exposure, and do not always occur with exposure
 - For infants, acidic foods may cause a rash (not hives) on face, hands, or diaper area

Food Intolerance

- **Food intolerance:** symptoms caused by the inability to digest a food
 - Also causes an unpleasant reaction, typically GI symptoms
 - Triggered by a lack of or insufficient amount of a digestive enzyme
 - Lactose intolerance is the most common example

Food Allergy

- **Food allergies** are immune mediated hypersensitivity reactions in response to dietary proteins
 - IgE-mediated reactions usually occur immediately or soon after exposure
 - Non-IgE-mediated reactions are delayed onset, typically hours after exposure

Food Allergy

- **IgE-mediated reactions**
 - Can be triggered by smelling, touching, or ingesting a particular food
 - Usually occur within minutes, up to an hour after exposure
 - Histamine release causes symptoms that may include itching, urticaria (hives), angioedema, respiratory distress, and anaphylaxis
 - Chronic IgE-mediated allergy may be a factor in atopic disease, e.g. atopic eczema and asthma, but these conditions usually have multifactorial causes

Food Allergy

- **Non-IgE-mediated reactions**
 - Delayed onset, typically hours after exposure
 - Believed to be T cell mediated
 - Usually manifest symptoms in the GI tract
 - Most common causative dietary proteins are those found in infant formula:
 - Cow's milk
 - Soy

Allergenic Foods

- The most common allergenic foods
 - cow's milk
 - fish
 - eggs
 - shellfish
 - peanuts
 - soy
 - tree nuts
 - wheat
- My advice to parents
 - Use caution if there is family history of food allergies: introduce allergenic foods individually and in small amounts, and observe carefully. Consider referral to allergist.
 - If no family history, may introduce as desired

Allergenic Foods

- Remember, infant has already been exposed via breastmilk if mother eats those foods
- Recent studies indicate early exposure to allergenic foods may actually be beneficial in preventing allergies
- Breastfeeding while introducing foods is likely beneficial
 - Reduced risk of developing celiac disease in early childhood if dietary gluten introduced to children under age 2 while continuing to breastfeed[†]

[†] Ivarsson, A., et al. "Breast-feeding protects against celiac disease." *American Journal of Clinical Nutrition*, 2002

Food Safety: Produce

Choosing fruits and vegetables: organic or not?



www.ewg.org

Food Safety: Fish

- Fish is nutritious with a texture that makes it an ideal early food; unfortunately some fish contains high levels of mercury
- While total intake is small for infants, there will also be additional low level exposure via breastmilk if mother is eating the same fish
- Choose fish high in Omega-3 fatty acids and low in mercury

Food Safety: Fish



From Environmental Working Group, www.ewg.org/research/ewgs-good-seafood-guide, 2015

Food Safety: Other Concerns

- Avoid foods with potential to cause foodborne illness (www.foodsafety.gov)
 - Raw seafood (sushi)
 - Raw or undercooked meat
 - Unpasteurized milk, cheese, and cider
 - Honey
 - Foods containing raw eggs

Common Myths

- Babies need teeth to eat foods with texture
- Avoid seasoning or spices
- Bigger (or smaller) babies need complementary foods sooner
- Babies will sleep longer once they are eating solid foods

Common Questions from Parents

Q: Should I breastfeed before or after offering food?

A: That's up to your baby and you. Your baby will let you know what he/she wants.

Q: Why do I see what my baby ate in the diaper?

A: Breastmilk is very quickly digested, so breastfed infants have fast transit through the GI tract.

Q: What should my baby drink?

A: Once your baby is eating food, you may offer water in a cup or sippy cup.



Common Questions from Parents

Q: May I give my baby pureed food anyway?

A: Of course, it is the parents' decision. I still encourage practice with self feeding, and suggest variation in pureed foods to avoid excess beta carotene.

Q: My baby doesn't like _____. What should I do?

A: Continuing offering it. Your baby may need to try a food many times before "liking" it.

Summary

- Recommend exclusive breastfeeding for the first 6 months.
- Protect and promote continued breastfeeding as complementary foods introduced.
- Encourage parents to use common sense and an infant led approach to introducing complementary foods.

