

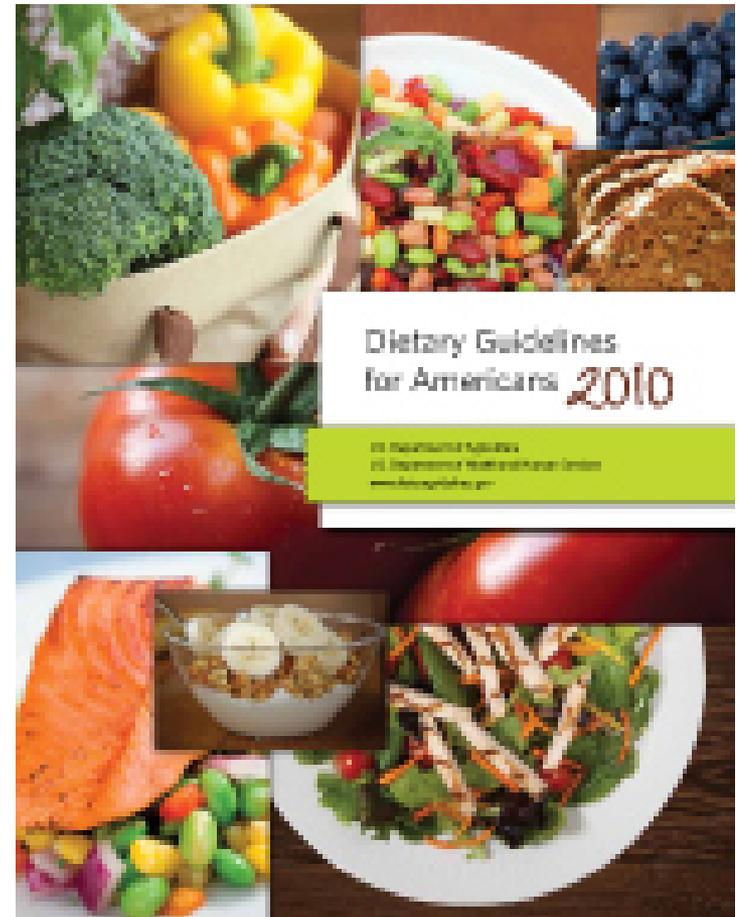
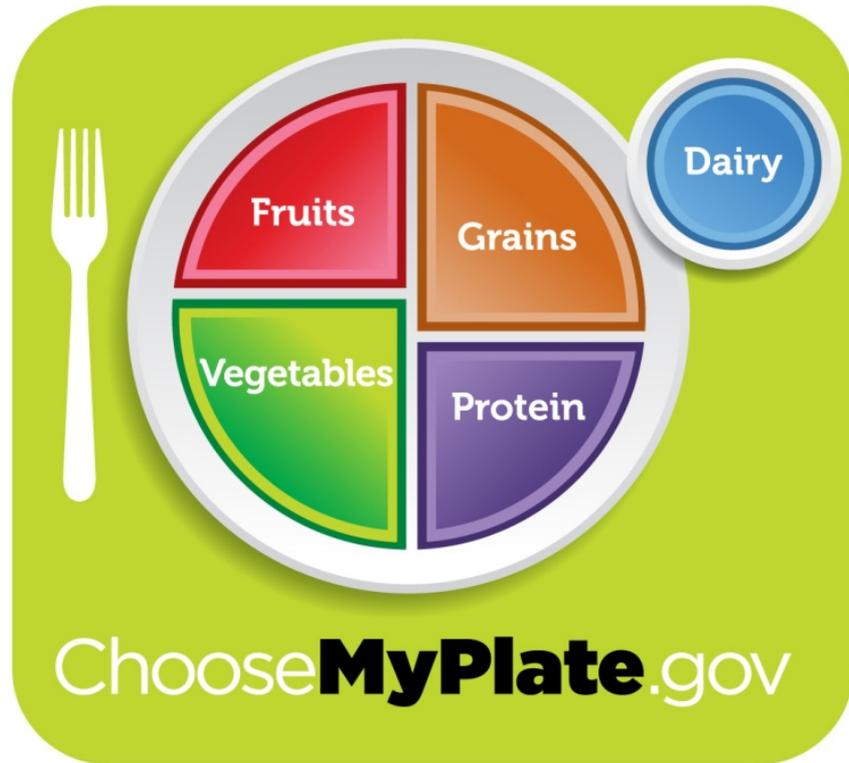


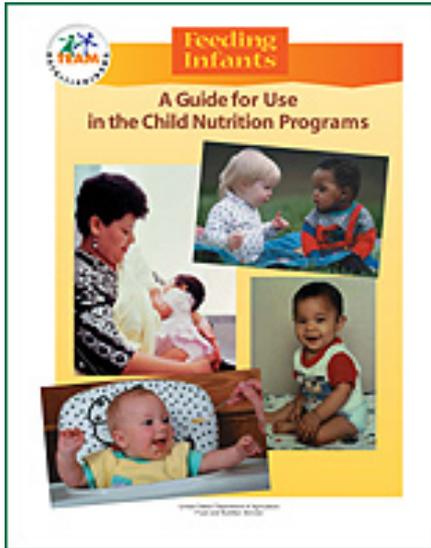
Bringing Baby to the Family Table

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Dietary Guidance



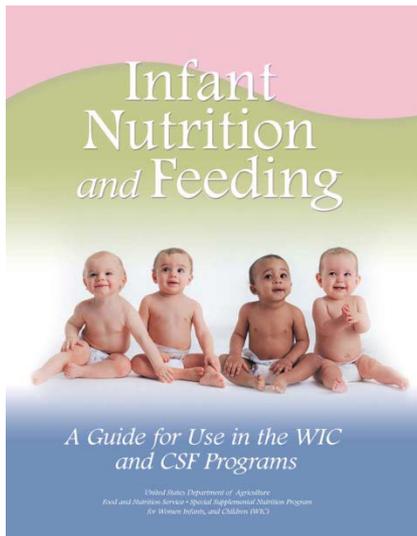


PEDIATRICS

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Breastfeeding and the Use of Human Milk
SECTION ON BREASTFEEDING
Pediatrics, originally published online February 27, 2012;
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The online version of this article, along with updated information and services, is located on the World Wide Web at:
<http://pediatrics.aappublications.org/content/early/2012/02/22/peds.2011-3552>



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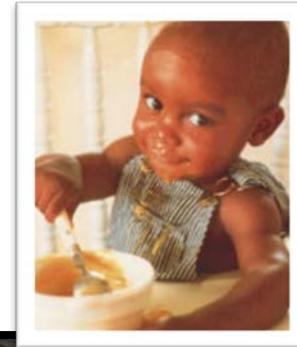
B-24 Project

- Dietary Guidelines 2020
 - Include dietary guidance, pregnant women & birth-24 months
- NIH, National Institute of Child Health and Human Development (NICHD)
 - “Evaluation of the evidence base” to support inclusion of infants and children, 0-24 months
 - ID’ed topics for systematic review and for further research



Talk Content

- Recommendations, 0-6 months
- Infants 6-12 months
 - Complementary foods
 - What
 - How
- Curricula
- “Hot Topics”
 - Protein
 - Allergies





Breastfeeding Recommendations

United States

- American Academy of Pediatrics, American Dietetic Association, others...

6 months exclusive, continued to 1 year, longer as mutually desired

World Health Organization

- 6 months exclusive, continued to 2 years, longer as mutually desired





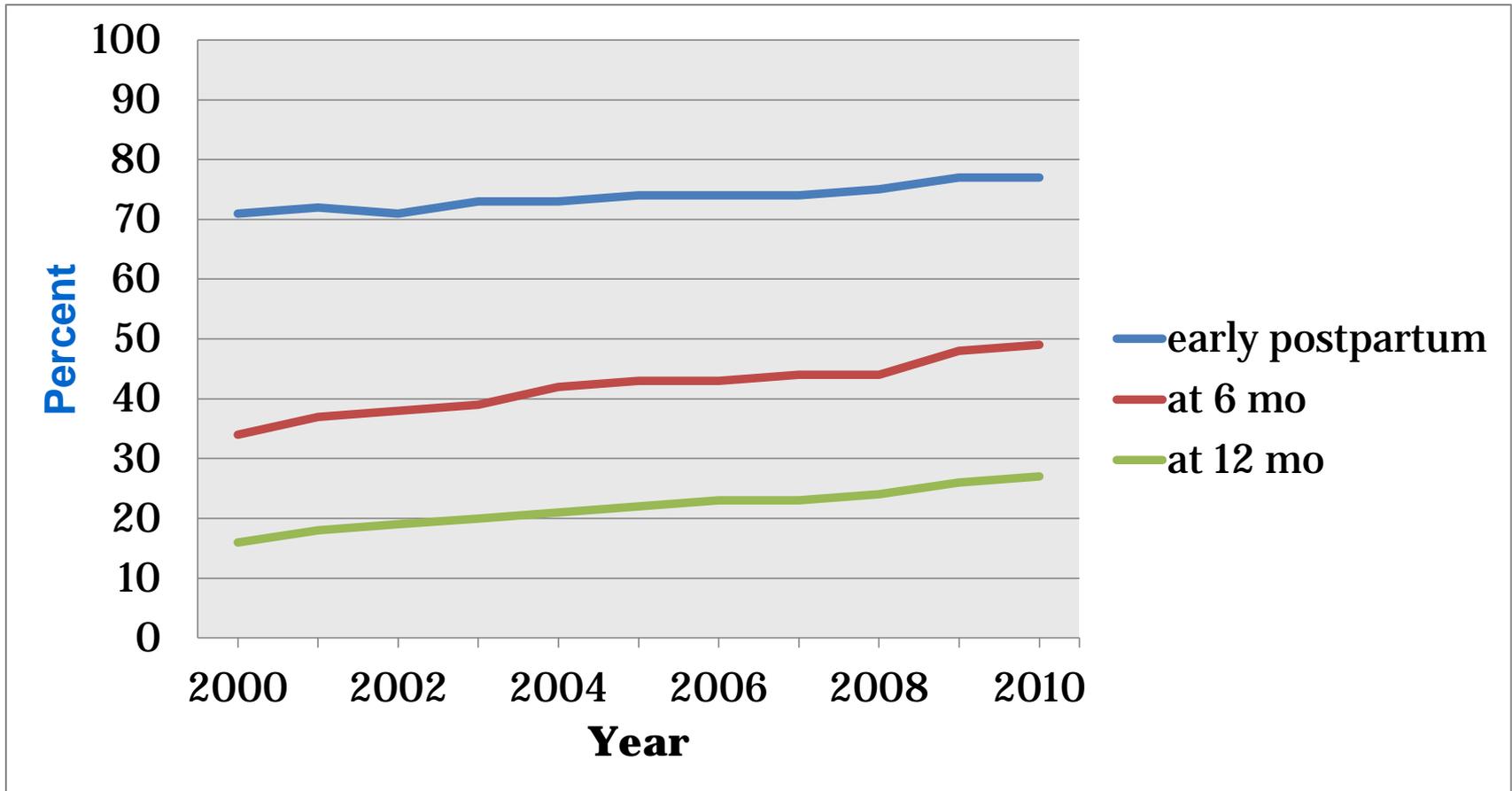
Breastfeeding Benefits

- **Infant**
 - Complete nutrition
 - Health
- **Mother**
 - Health
 - Bonding
- **Families**
- **Society**
 - Economic
 - “Green”





Any Breastfeeding





“Culture & Tradition of Breastfeeding”

Earlier: “Mothering the Mother”

- New mothers cared for by other women (family, friends, neighbors)
- Passed on patterns of mothering
- Breastfeeding
 - Culture & tradition
 - Knowledge
 - Role models

Now: Reliance on health professionals

Role for peer counselors





Formula

Breast milk is “gold standard”

Formula = modified cow’s milk

- Protein, carbohydrate
- Fortified with nutrients, incl. iron, vitamin D

All nutrition needed for ~first 6 mo., then solid food is needed

NO cow’s milk til 1 year of age





Bottles

- For breast milk and formula only
– no cereal!
- Hold baby (don't prop bottles, put to bed with bottle, let carry bottle = Early Childhood Caries)
- Same for “sippy cups”
or other = toddler bottle





Training Cups

For juice, milk, or water

Proper training cups have:

- Weighted bottom
- Two handles
- Snap or screw-on lid with a spout
- No valve on the spout





Flavor Learning

Pregnant women in last trimester, planning to breastfeed

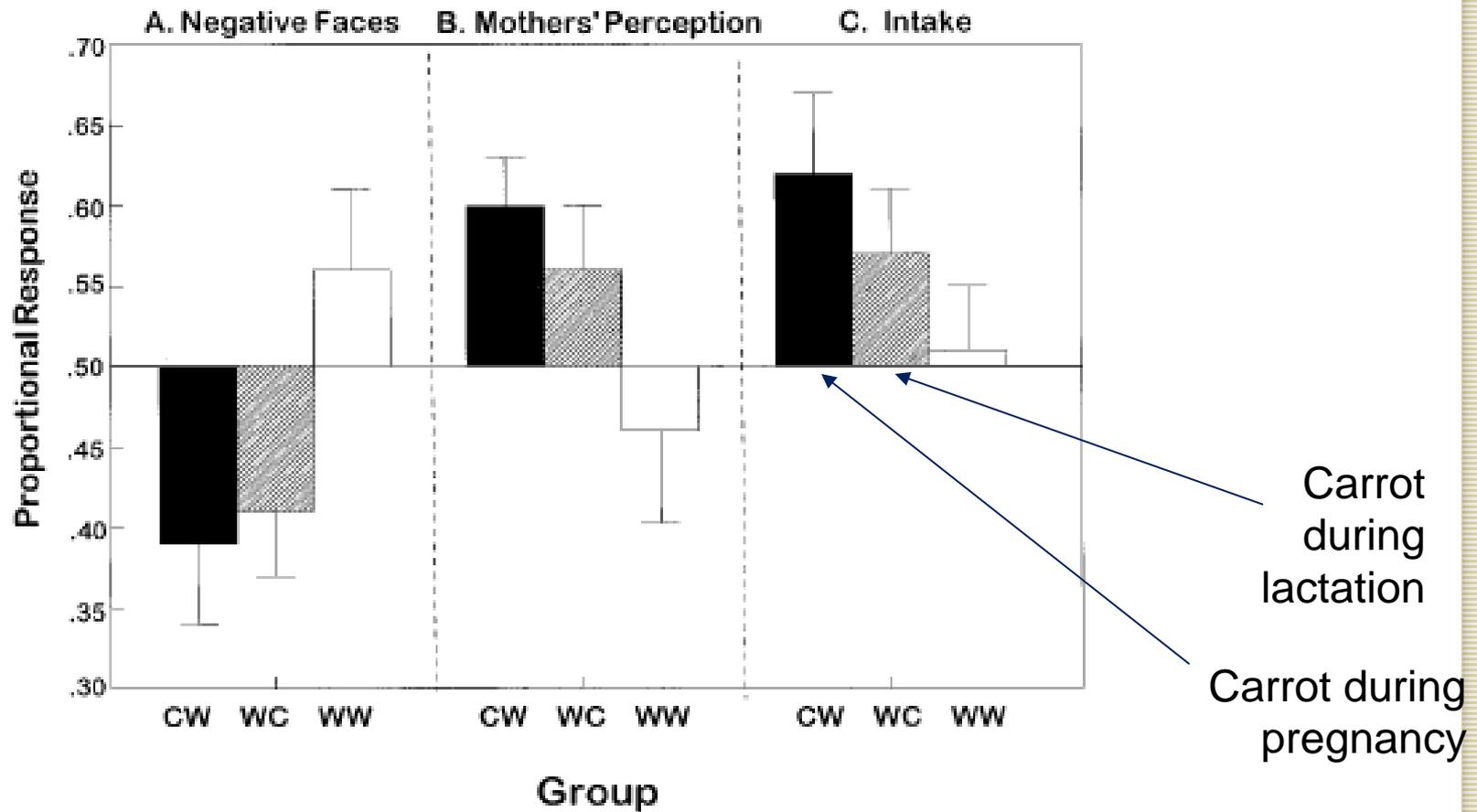
Given water or organic carrot juice (300 ml/day)

- Pregnant: **Carrot** Breastfeeding: Water (**CW**)
- Pregnant: Water Breastfeeding: **Carrot** (**WC**)
- Pregnant: Water Breastfeeding: Water (**WW**)



Babies' responses

Cereal w/ carrot (compared to cereal-plain)





Complementary Foods

- Needed about six months of age
 - Breastmilk/formula inadequate
 - Infant stores depleted
 - Key: iron, zinc, vitamin D, LCPUFA, B12
- Baby developmentally and physiologically ready
- Need increases in types, textures, modes of feeding



Juice

The American Academy of Pediatrics (AAP) recommends that fruit juice not be given to infants under six months of age since it offers no nutritional benefit to babies in this age group. After six months of age, infants may have limited amounts of juice each day.

For youngsters older than six months, fruit juice offers no nutritional benefits over whole fruit. Whole fruits also provide fiber and other nutrients. Infants should not be given fruit juice at bedtime, nor as a treatment of dehydration or management of diarrhea. For children ages one to six years old, limit fruit juice consumption to 4 to 6 ounces (120–180 ml) each day



Age of introduction

- American Academy of Pediatrics
 - Developmental readiness = 4-6 months
 - Exclusive breastfeeding for 6 months
- To consider...?
 - Breastfed vs. formula fed
 - Newer research on allergies
 - Solids introduced while still breastfeeding
 - Window to introduce



Developmental readiness

- Sitting with support
- Head & neck control
- Tongue thrust/gag reflex
- Opening mouth for spoon
- Gumming/chewing
- Also-gut maturation





Reasons for starting solids

- **Baby old enough**
- HCP recommended
- Baby interested
- Wanted to give something vs. breastmilk or formula
- Baby seemed hungry a lot of time
- Baby sleep longer
- Eating too much formula
- Friend/relative recommendation
- Not enough breastmilk
- Baby not gaining weight (Big baby)



Foods

- Meet iron, zinc needs
 - Meat, poultry, fish
 - Fortified cereals, any grain
(With formula, breast milk)
 - Fruit, veg, dairy
- Any order!
- Any rate!



Textures



- Textures

- Pureed, fork-mashed, lumpy, minced, chopped...
- Family foods
 - Softer (well-cooked, ripe)
 - 1/2 in pieces or less



- Additions

- No salt, sugar
- Spices?





Amounts

- Portions
 - Begin with teaspoons, progress to tablespoons
 - Single foods, then add multiple foods/eating occasion
- Frequency
 - 1 meal/day
 - Progress to 3 meals, 2-3 snacks

Appendix D: Guidelines for Feeding Healthy Infants, Birth to 1 Year Old

(Note: These are general guidelines for the healthy, full-term infant per day; serving sizes may vary with individual infants.)

Age	Breast Milk or Infant Formula	Grain Products	Juices	Vegetables	Fruits	Protein-Rich Foods
Birth–4 Months	Breast: 8–12+ feedings Iron-Fortified Infant Formula: 14–42 ounces (~108 kcal/kg body weight)	None				
4–6 Months	Breast: 5 or more feedings Iron-Fortified Infant Formula: 26–39 ounces (~108 kcal/kg body weight)	Iron-fortified infant cereals or enriched hot cereals (1–2 Tbsp)	None	Plain strained or pureed cooked vegetables (1–2 Tbsp)	Plain strained or pureed fresh or cooked fruits (1–2 Tbsp)	Plain strained or pureed protein-rich foods such as meats, egg yolk, and legumes may be introduced if an additional food source of iron is needed
		The American Academy of Pediatrics (AAP) Section on Breastfeeding recommends exclusive breastfeeding for the first 6 months of life. The AAP Committee on Nutrition recommends that, in developed countries, complementary foods may be introduced between ages 4 and 6 months. This is a population-based recommendation, and the timing of introduction of complementary foods for an individual infant may differ from this recommendation.				
6–8 Months	Breast: 3–5 feedings Iron-Fortified Infant Formula: 24–32 ounces (~98 kcal/kg body weight)	Iron fortified infant cereals or enriched hot cereals (4–6 Tbsp) Dry toast, small pieces of crackers, or dry breakfast cereals and other grain products (4–6 Tbsp)	100 percent pasteurized fruit or vegetable juice (2–4 ounces) * Juice offers no nutritional benefit over whole fruits and vegetables. If offered, it should be in a cup.	Plain strained or pureed cooked vegetables (3–4 Tbsp)	Plain strained or pureed fresh or cooked fruits (3–4 Tbsp)	Plain strained or pureed protein-rich foods such as meats, egg yolk, and legumes (1–2 Tbsp)

Age	Breast Milk or Infant Formula	Grain Products	Juices	Vegetables	Fruits	Protein-Rich Foods
8-12 Months	Breast: 3-4 feedings Iron-Fortified Infant Formula: 24-32 ounces (~98 kcal/kg body weight)	Iron-fortified infant cereals or enriched hot cereals (4-6 Tbsp) Dry toast, small pieces of crackers, or dry breakfast cereals and other grain products (4-6 Tbsp)	100 percent pasteurized fruit or vegetable juice (2-4 ounces) * Juice offers no nutritional benefit over whole fruits and vegetables. If offered, it should be in a cup.	Plain pureed, mashed, or chopped cooked vegetables (3-4 Tbsp)	Plain pureed, mashed, or chopped cooked fruits (3-4 Tbsp)	Pureed or chopped lean meat, poultry, fish, egg yolk, cheese, yogurt, or mashed legumes (1-3 Tbsp)
Comments	<ul style="list-style-type: none"> By about 12 to 14 months, try to wean entirely off the bottle and onto a cup. An infant's health care provider may recommend feeding a small amount of sterile water (~4 to 8 ounces per day) in a cup when complementary foods are introduced. 	<ul style="list-style-type: none"> Examples of other grain products include zwieback, bread, noodles, mashed rice, corn grits, and soft tortilla pieces. Avoid wheat cereals until 8 months. Do not add sugar or syrups to cereal. Never add honey to cereal or any foods. Avoid foods that may cause choking. 	<ul style="list-style-type: none"> Avoid feeding soda, fruit punches, ades, and drinks, gelatin water, coffee, or tea. 	<ul style="list-style-type: none"> It is not necessary to add salt, sugar, oil, butter, other fats, or seasonings. Avoid foods that may cause choking. 	<ul style="list-style-type: none"> Do not add sugar or syrups to fruits. Never add honey to fruit or any foods. Remove seeds and pits from fruits. Avoid foods that may cause choking. 	<ul style="list-style-type: none"> Avoid fried meats, gravies, sauces, processed meats (e.g., hot dogs, luncheon meats, bacon, and sausage). Check carefully for bones (especially in fish). Do not feed any shellfish, peanut butter, whole eggs, or egg whites before 1 year of age. Avoid foods that may cause choking.

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- Samour PQ, King K, editors. *Handbook of Pediatric Nutrition*. 3rd ed. Sudbury, MA: Jones and Bartlett Publishers, Inc., 2005.



Safety

- Choking
 - $\leq 1/2$ inch pieces
 - Risky foods
 - Round and firm foods, large chunks of food, sticky foods, foods hard to chew or gum
 - Whole circle hot dogs, whole grapes, chunks of peanut butter, candy, chewing gum, nuts, seeds, popcorn, raisins
- Check fish safety
- Check water safety
- No honey before 1 year
- Safe food handling, cleanliness



Hunger & Satiety

Signs baby is hungry

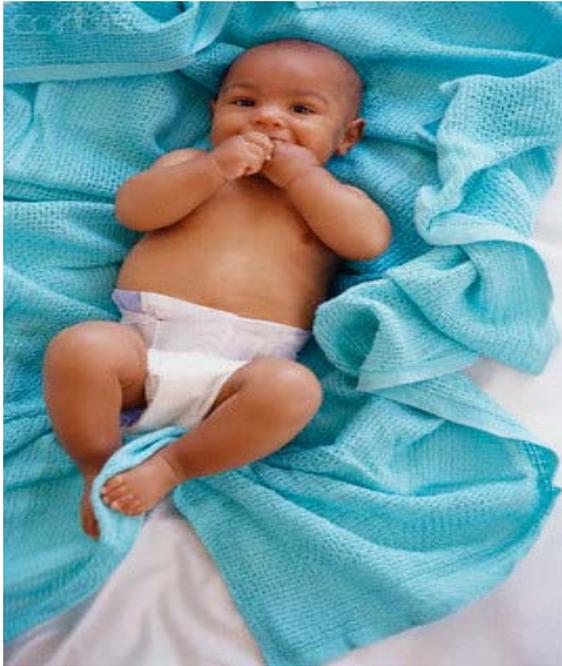
- Fussing and then crying
- Squirming and stretching, clenching fists
- Sucks fist
- “Roots” or turns head for breast or bottle
- Leans forward for food
- Opens mouth for spoon or even reaches for spoon

Signs baby is full

- Stops sucking, lets go of breast or bottle nipple
- Turns head away
- Becomes sleepy or falls asleep
- Pushes away bottle or spoon
- Closes mouth
- Loses interest in eating, starts to play



Feeding cues





Division of responsibility

- Parent provides, child decides
 - Parent provides variety of healthy foods, sets healthy eating environment
 - Child decides when and how much to eat
- Concept easier for us than parents!
 - Transition from “on-demand” to schedule
 - Trusting child knows “full”
 - “Cluster cues”
 - Baby temperament



Transition in infant feeding

Breastmilk/formula



“Baby foods”



Family foods

Mothers FGs

- Knowledge: solids foods, cues, environment
- Applicability of guidelines: skepticism/acceptance, exceptions, influence of others
- Role of HCP's

HCPs FGs

- Sources of information, and conflicting advice
- Use of recommendations
- Early cereal introduction
- Mealtime environments



Videos

<http://www.youtube.com/channel/UCe2YCbpNj2erLN3ySW515MQ>



Feeding Infants and Toddlers Data 2008

	Percent consuming at least once in a day			
	Age (mo)			
	4-5.9	6-8.9	9-11.9	12-14.9
Any fruit/juice	22	77	89	90
Any fruit	19	65*	82**	74***
Baby fruit	17	50	42	16
Non-baby fruit	2	21	51	69
100% fruit juice	7	31	41	55

Fresh or frozen (vs. dried/canned)

* 18%

** 37%

*** 54%



	Percent consuming at least once in a day			
	Age (mo)			
	4-5.9	6-8.9	9-11.9	12-14.9
Any vegetable	26	63	72	72
Baby food vegetable	24	51	34	15
Cooked veg	2	15	45	61
Raw veg	0	0	5	6
Dark green				
Dark green	0	2	11	11
Deep yellow				
Deep yellow	21	36	30	24
Potatoes				
Potatoes	1	5	20	32
Fried potatoes				
Fried potatoes	0	1	6	19
Other starchy				
Other starchy	2	12	13	12
Other				
Other	8	24	29	27



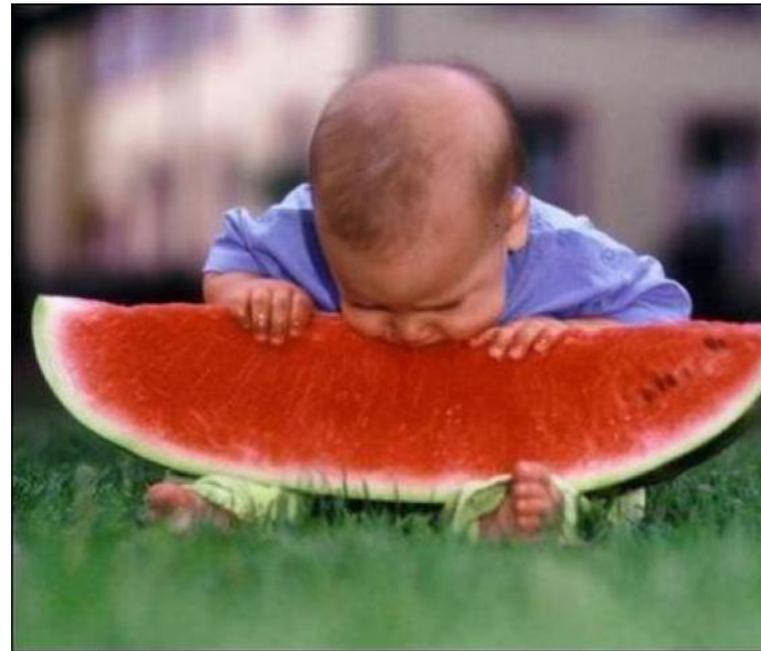
Feeding environment

- Early
 - Seated (baby seat, lap, high chair)
 - TV off!
 - Caregiver sit with baby, interact
- Later
 - Eating family meals at table
 - Social interaction
 - Utensils, sharing, manners



Utensils, bowls, and FINGERS!







Healthy Babies

Randomized, controlled trial in Michigan & Colorado

Nutrition education

- Intervention: Healthy Babies = nutrition, cues, temperament, planning, responsiveness
- Control: Healthy Families = EFNEP curriculum

Participants

- Low income mothers (89% income < \$25,000)
- Lower education, single
- AA, Hispanic, White

Data collection

- Times: baseline, 6 mo (n=260) & 12 mo (n=130)
- Maternal responsiveness, feeding practices & style



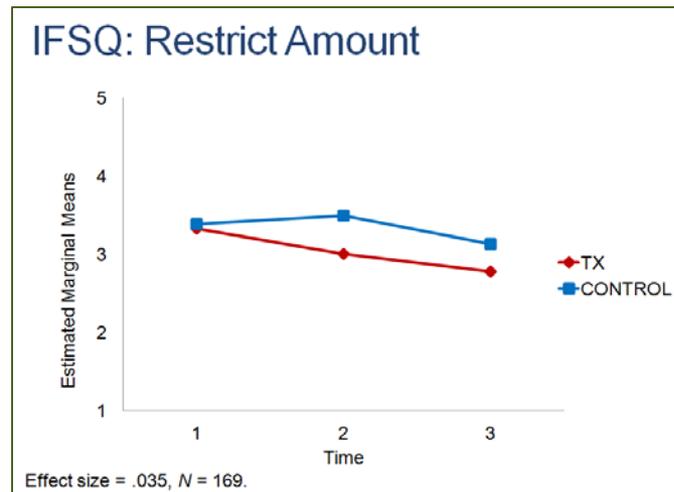
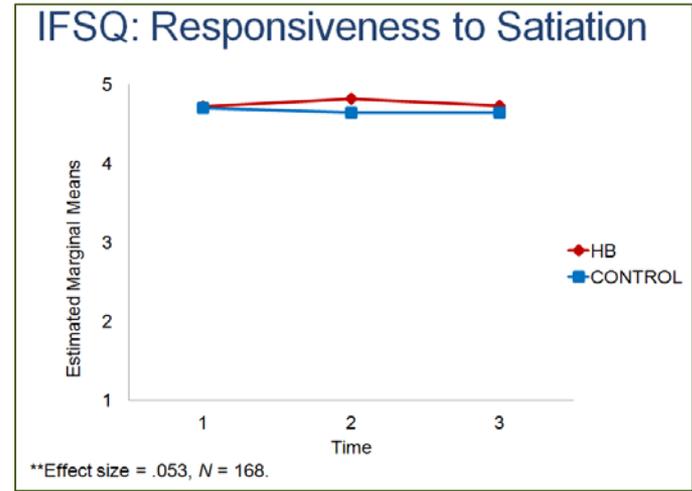
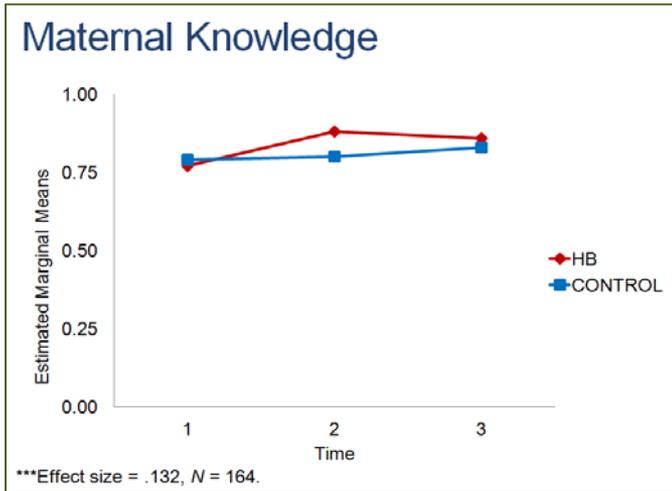


Six lesson series

Lesson	Goals
1. My Baby's First Foods	<ul style="list-style-type: none">• Parents wait to introduce solid foods until their baby is about six months old.
2. Feeding My Older Baby	<ul style="list-style-type: none">• Parents successfully introduce solid foods to their baby.
3. What is My Baby Telling Me	<ul style="list-style-type: none">• Parents can describe their baby's basic feeding cues.
4. Is Your Baby Flexible, Shy or Feisty?	Parents describe: <ul style="list-style-type: none">• Characteristics of baby's temperament; and,• How understanding their baby's temperament can help them feed their baby successfully.
5. Parent Provides, Baby Decides	<ul style="list-style-type: none">• Parents learn what food to serve to baby and when to serve them.• Parents let their baby decide whether or not to eat and how much to eat.
6. My Plan for Feeding My Baby	<ul style="list-style-type: none">• Parents develop a plan for feeding their baby during the first year of life.



Healthy Babies: Preliminary results





Lesson Plan Five: Parent Provides, Baby Decides

Getting Ready..... 3

Teaching the Lesson 5

For Your Information..... 29



My Plan for Feeding My Baby



Appropriate food consistencies by age

Six months	Nine months	One-year-old
pureed baby food fruit	mashed fruit	small pieces of soft fruit
baby cereal	oat-O's cereal	oatmeal with fruit
formula	yogurt	whole milk
baby food meat	small pieces of meat	mixed meat dish (e.g. chicken and rice)



Cut all foods for your 6-12 month old baby to ½ inch or smaller so your baby doesn't choke.





Feeding Your New Baby

Getting Ready 4

Teaching the Lesson..... 9

For Your Information..... 39

Eating Smart, Being Active

<http://www.ext.colostate.edu/esba/>

Feeding Your New Baby

Feeding Your Baby Solid Foods

What's wrong with this picture?

Write what is wrong with each picture on the lines provided.









How to prevent choking

Draw an "X" through the plates of food that can cause choking.





Fact sheets

<http://bookstore.msue.msu.edu/>

Search: Olson



Where do we end up?!



Family meals with family foods (...and snacks)



Protein

- Cow's milk formula feeding
 - Protein greater to meet human amino acid requirements
 - Breastfed babies leaner at one year vs. FF infants (not length differences)
- Protein intakes >> than requirements
- ?Increase risk of overweight/obesity?



Allergies

- Rethinking of prevention
 - Exposure in “window” vs. avoidance
 - Role of breastfeeding
- Breastfeeding
 - Exclusive to at least four, possibly six months
 - Solid food introduction with continued breastfeeding
- Foods introduced > 4-6 months; delay not generally beneficial-maybe harmful



Questions?