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# Nutrition, Feeding Guidelines, and Vitamins in Infants & Toddlers

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# Objectives

- ◉ Discuss feeding guidelines
  - When and how to start solids in infants
  - How to advance to different stages of feeding in infants and toddlers
- ◉ Discuss nutrition and vitamins
  - Calcium, vitamin D, and iron requirements in infants and toddlers
  - Who needs vitamin and fluoride supplementation
  - How much milk, fiber, and fruit juice is appropriate

# How do I know if my baby is getting enough to eat?

## ◉ The Good News: self regulation

- Feeding On Demand
  - Infants self regulate their intake
  - THEY will tell YOU how much, how often

## ◉ Input vs. Output

- What Goes In Must Come Out
  - Some generalities can be made for intake and output

## ◉ Weight Gain

- Infants lose weight the 1st wk of life (up to 10%)
  - Breastfed babies regain their birth wt by 14 days
  - Formula fed babies regain their birth wt by 7-10 days

# If you gotta have numbers...

## ○ Breastfeeding Infants

- Feed every 1.5-3 hrs in the beginning (once milk is in)
- The 1st 48 hrs: normal for baby to be sleepy and not feed this frequently -- this is ok, offer breast frequently
- Wake to feed in 1st mo if longer than 4-5 hrs since last feed
- Average time = 20 mins (most feeds 10-30 mins)
  - 0-2 mos: 8-12 times/day (once milk is in)
  - 2-4 mos: 6-12 times/day
  - 4-6 mos: 6-10 times/day

# If you gotta have numbers...

## ◉ Formula fed Infants

- 0-1 mos: 2-4 oz/feed, 6-10 x/day, 12-32 oz/day
- 1-2 mos: 4-5 oz/feed, 5-6 x/day, 20-30 oz/day
- 2-3 mos: 5-6 oz/feed, 5-6 x/day, 25-36 oz/day
- 3-4 mos: 6-7 oz/feed, 4-5 x/day, 24-35 oz/day
- 4-6 mos: 6-8 oz/feed, 4-5 x/day, 24-40 oz/day

## ◉ Rules of thumb

- After 1st month, amt of feed increases by 1 oz/month until at 8 oz per feed
- 2.5 oz formula / lb body weight / day (average)

# How do I know if my baby is getting enough to eat?

## ◉ Output

- Breastfeeding Infants
  - 6-8 wet diapers per day
  - Stools are watery, yellow, seedy
  - Initially may stool after every feed then gradually decrease
- Formula fed Infants
  - 6-8 wet diapers per day
  - Stools are soft, more formed than breastfed babies
  - 1-4 stools per day in the beginning then gradually decrease
  - Stool less frequently than breast fed babies

# At Your Doctor's Visit

- Weight Gain and Growth Charts
  - Gain about 1 oz/day in early months
  - Weight is checked 1-2 times after hospital discharge, then at 2 mos, 4 mos, 6 mos, etc.
  - Weight may be checked more frequently if concerns
- Red Flags:
  - Poor weight gain
  - “Not tracking” on growth charts
  - In times of illness: decreased # of wet diapers

# Feeding Progression 4-6 months old

- Start complementary foods 4-6 mos old
- Signs of readiness for solids
  - Can sit with support w/good head/neck control
  - Opens mouth when food is offered
  - Extinction of extrusion reflex -- does not raise tongue and push against objects
  - Able to move semi solid food from front to back of mouth



# Feeding Progression 4-6 months old

- Start with single ingredient foods
  - 1st: Infant rice cereal and pureed meats (provides iron and zinc)
  - 2nd: Strained/pureed fruits and vegetables
- Add 1 new food every 3-7 days
  - This will assist in ID of any food intolerance

# Feeding Progression from 6 mos to 12 mos old

- ◉ Combination foods once infant tolerates individual components
- ◉ Thicker purees and mashed foods once infant can sit independently and tries to grasp food with hands at 6-8 mos
- ◉ Finger foods (finely chopped soft foods) by 8-10 mos
- ◉ Self feeding by 9-12 mos

# Things To Avoid

- Avoid free water or diluting feeds < 6 mos
- Avoid unmodified cow's milk before the age of 1y/o
- Avoid honey (due to infant botulism) before the age of 1 y/o
- Avoid choking items like small, round foods
  - Nuts, grapes, raw carrots, popcorn, raisins, hot dogs

# How Do I Know If My Toddler Is Getting Enough To Eat?

## ○ The Good News: self regulation

### • Toddlers

- Allow your toddler to self feed
- Allow your toddler to choose what and how much food

### • Parents

- Should offer a variety of nutritious foods
- Structured mealtimes free of distractions
- Model healthy eating behaviors
- Recognize and response to child's signals of hunger and fullness

# How Do I Know If My Toddler Is Getting Enough To Eat?

## ◉ The Bad News

- Picky Eater = Normal Toddler Behavior
  - Growth rate and appetite decrease after the 1st Bday
  - Toddlers eat variable quantities at any given meal
  - Toddlers choose from a smaller variety of foods -- try new foods 8-10 times before concluding that they don't like it
- Food Struggles/Control Issues
  - Don't pressure, beg, or punish
  - Respect any strong food dislikes

# Protein, Fat, and Carbs

## ◉ Protein

- 1-3 y/o: 5-20% of total intake
- 4-18 y/o: 10-30% of total intake

## ◉ Fat

- 2-3 y/o: 30-35% of total intake
- 4-18 y/o: 25-35% of total intake

## ◉ Carbs

- 45-65% of total intake

## ◉ MyPyramid.Gov - interactive individualized website

# At Your Doctor's Visit

- ◉ Weight Gain and Growth Charts
- ◉ Red Flags:
  - Poor weight gain
  - “Not tracking” on growth charts
- ◉ Discuss Feeding Problems
- ◉ Feeding Clinics

# Feeding Progression In Toddlers

- ◉ Important to encourage self feeding
- ◉ Wean from bottle to cup at 12-15 mos
- ◉ Completely transition from bottle to cup ideally at 15-18 mos to 2 y/o



# Things to Avoid

- ⦿ Power struggles
- ⦿ Bottles at bedtime/naps (tooth decay)
- ⦿ Unhealthy foods --> energy rich, nutrient poor snacks (salty snacks, cookies, sweetened beverages)
  - This is the time to start developing healthy eating habits, encourage outdoor play/nature, and encourage a healthy body image

# Milk

- Benefits of milk include calcium and vitamin D
- Avoid unmodified cow's milk before 1 y/o
- Transition from whole milk to skim-2% at 2 y/o
- Excessive milk intake can displace the desire for other nutrients and foods

# How Much Vitamin D?

- ◉ Minimum of 400 IU per day (all ages)
- ◉ Vitamin D is essential for calcium absorption into bones
- ◉ Formula, cow's milk, soy milk, and rice milk are fortified with Vitamin D
  - 8 oz = 100 IU Vitamin D
- ◉ Breastmilk does not have enough Vit D
- ◉ Vitamin D rich foods include
  - eggs, fortified dairy products, cereal, bread, fish

# Who Needs a Vitamin D Supplement?

- ◉ Exclusively breastfed babies
- ◉ Formula fed infants who drink <32oz formula per day
- ◉ Kids > 1 y/o who drink < 32 oz (4 cups)milk/day AND don't eat other foods containing Vitamin D

# How Much Calcium?

- ⦿ 1-2 y/o: 500mg/day (2 cups milk)
- ⦿ 2-8 y/o: 800 mg/day (3 cups milk)
- ⦿ 9-18 y/o: 1300 mg/day
  
- ⦿ 1 cup (8 oz) milk = 300 mg Calcium

# How Much Milk is Enough?

- ⦿ 1 cup milk = 8 oz
  - 8 oz milk = 300mg Calcium+100 IU Vitamin D
- ⦿ 2-4 cups milk per day, but if only 2 cups, additional Vit D and/or Calcium is needed

# How Much Iron for Infants?

- ◉ Breast Fed infants after 4-6 mos
  - Need additional iron through cereal and/or meats
  - Iron fortified infant cereal 2 oz x 2 servings
  - Pureed meats 1/2-1 jar / day
- ◉ Formula Fed infants
  - Do not need additional iron supplementation
- ◉ Anemia Screening
  - 9-12 mos; +/- 15-18 mos

# How Much Iron for > 1y/o?

- ◉ Ages 1-13 y/o: 7-10 mg/day
- ◉ Males > 14 y/o: 11 mg/day
- ◉ Females > 14 y/o: 15 mg/day



# Who Needs a Multi Vitamin?

- ◉ Exclusively BreastFed Infants
- ◉ Low Vitamin D intake (<400 IU/day)
- ◉ Low Calcium intake
- ◉ Low Iron Intake
- ◉ Vegetarians and Vegans (low iron/B12)

# What About Fluoride?

- ◉ Fluoride supplements are indicated for:
  - At least 6 mos old AND
    - Exclusively breastfed infant
    - Infants fed ready to feed infant formulas
    - Formula fed AND community water is not fluoridated
  - Fluoride is by prescription only
    - Multi-vitamin + fluoride rx
    - Fluoride rx only

# How Much Fiber is Enough?

- Benefits of fiber
- 2 y/o or older = Age + 5-10 grams/day (not to exceed 30 grams/day)
- Fiber rich foods
  - Fruit (bananas, berries, apples, oranges, raisins)
  - Veggies (greens, peas, broccoli, carrots, corn)
  - Granola and fiber rich cereals
  - Whole wheat or multi grain breads, crackers, muffins

# Fruit Juice

- Avoid fruit juice < 6mos old
- Avoid sweetened fruit juices
- 100% fruit juice is preferred
- 100% fruit juice (4-6 oz) can count as 1 fruit serving BUT lacks fiber of whole fruit
- Limit fruit juices to due to high sugar and caloric content
  - 4-6 oz/day (1-6 y/o)
  - 8-12 oz/day (> 7 y/o)

# Conclusions

- Infants and Toddlers self regulate their intake
- Parents should model and offer nutritious food choices
- Routine Doctor's visits for Growth Curves
- Check with your doctor whether a multi-vitamin +/- fluoride is needed
- Healthy eating habits in early childhood = less obesity and diabetes, HTN, heart dz