

Feeding Issues, Pediatric Nutrition & Constipation

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FEEDING & NUTRITION: BEGINNINGS



Feeding Development

- Typical progression
 - Liquids
 - Liquids, cereals, purees
 - Liquids, purees, mashed, junior foods, crackers
 - Liquids, coarsely chopped, easily chewed, breads
 - Liquids, coarsely chopped, most meats and raw
- Jaw, tongue, lips, cheeks – development
- Breathing – more mature
- GI system – more developed

Development Stages	Newborn	Head Up	Supported Sitter	Independent Sitter	Crawler	Beginning to Walk	Independent Toddler
Physical Skills	• Baby head supported	• Baby with head supported sitting	• Sits with head supported upright	• Sits independently upright, head level or above	• Learns to crawl	• Walks with support	• Walks well and alone
Eating Skills	• Baby exclusively breastfed or bottle feeding	• Baby reaches for spoonfuls of food, tongue moves to taste food	• May push food into mouth with fingers, which may be messy	• Moves spoon to mouth, reaches for spoonfuls of food, begins to eat with fingers	• Learns to keep food in mouth to transfer to tongue	• Learns to pick up spoonfuls of food, begins to eat with fingers	• Combines eating with words or objects
Baby's Hunger & Fullness Cues	• Cries or fusses to eat or drink, shows interest in eating, during feeding, after feeding, when not feeding, when sleeping, when full	• Cries or fusses to eat or drink, shows interest in eating, during feeding, after feeding, when not feeding, when sleeping, when full	• Moves head to side to eat, reaches for spoonfuls of food, begins to eat with fingers	• Reaches for spoonfuls of food, begins to eat with fingers	• Reaches for spoonfuls of food, begins to eat with fingers	• Combines eating with words or objects	• Combines eating with words or objects
Appropriate Foods & Textures	• Breastmilk or infant formula	• Breastmilk or infant formula	• Breastmilk or infant formula	• Breastmilk or infant formula	• Breastmilk or infant formula	• Breastmilk or infant formula	• Breastmilk or infant formula

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The information in this chart has been reproduced with the permission of Gerber Products Company.

Challenges

- Oral/facial anomalies
 - Cleft lip or palate
 - Tongue tie
- Discoordination
 - Suck
 - Swallow
 - Breathing
- Oral motor delays
 - Tongue and jaw disassociation
- Respiratory problems
 - With lungs or with supportive structures

NUTRITION BASICS FOR EVERYONE



- Nearly all Foods/Fluids Provide –
 - Calories
 - Protein
 - Vitamins
 - Minerals
 - Water



- Specific foods provide –
 - Carbohydrate – grain, veggies, fruit, dairy
 - Fat – nuts, meats, sweets, oils
 - Essential Fatty Acids – oils, fish, flax, nuts
 - Essential Amino Acids - protein

Nutrients Needed



Milks



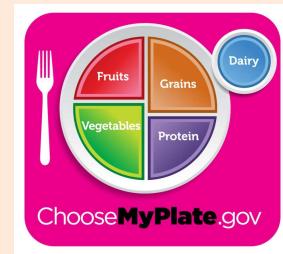
- Human – meant for humans
 - Goal for 1st 12 months of life
- Animal milk – meant for animals
 - Humans drink cow, sheep, goat, camel (seriously!)
- “Plant” milk
 - Soy, rice, oat, hemp, coconut, almond, hazelnut
- Protein of animal milk higher than human
 - Can cause GI problems in infant, iron losses
 - Introduce after 12 months of age
- Animal and plant milks are often fortified, but not equal to human milk in nutrition

Formulas & Supplements

- Infant – birth to 12 months of age
 - Premature or term
 - Can be used after 12 months if needed
- Toddler similar to infant – 9-24 months of age
- Pediatric – 1-10 years of age
- Adult – over 2-4 years of age
- Specialty
 - Soy
 - “Hypoallergenic”
 - Hydrolyzed, Extensively Hydrolyzed
 - Elemental, Amino Acid

Food Groups Recommended

- Grain
- Fruit
- Vegetable
- Protein
- Dairy
- Fat
- Water



Diet Advancement

- Depends on
 - Skills
 - Tolerance
 - Respiratory system
 - Physical development
 - Family desires

**WHAT DO WE NEED?
WHAT ABOUT GROWTH?**



Estimating Nutrition

- Human needs are the same, but different
 - Based on
 - body size, metabolism, respiration, activity, health, medical state
- Typical estimates based on -
- Protein - grams per kilogram weight
 - Calories - per kilogram weight, or centimeter length
 - Fluid – milliliters per kilogram weight
 - Vitamins & Minerals – for age, condition

Monitoring Growth

- 
- 
- CDC and WHO Growth Charts Up to 20 Years
 - Weight, Weight for Length, Stature, Head Circumference, Body Mass Index (older)
 - Specialty Growth Charts
 - Use along with CDC or WHO
 - Primary goal – consistent growth over time
 - Accuracy of measures and equipment
 - Concerns - spikes and drops on chart
 - Proportion is primary objective

BARRIERS TO OPTIMAL NUTRITION



What to look for - continued

- Preference for liquids vs solids
- Increased activity, desire for distraction, positioning with feeding
- Increased or decreased growth needs
- Advancing textures too quickly for skill
- Unrecognized breathing, oral-motor, GI, tonsils/adenoids, dentition, structural
- Food allergies/sensitivities

What to look for.....

- Latching on, suck/swallow/breathe coordination
- Increased/decreased tone
- Endurance with eating or drinking
- Limited volume, grazing
- Length of feeding, long or short meals, difficult mealtimes
- Spit up, GE reflux, vomiting, constipation, diarrhea
- Elevated respiratory rate

Special Diets

- Gluten Free – Celiac, allergy, preference – remove wheat and gluten products
- Casein Free – allergy, preference – remove dairy
- GF/CF – combo of both used often with autism
- Ketogenic – infantile spasms, seizure disorder – high fat and protein, very low carbohydrate
- Specific Carbohydrate Diet (SCD) – Celiac, digestive, autism – no grains, lactose, sucrose
- Gut and Psychology Syndrome (GAPS) – digestive, neurological, psychological problems – very restrictive
- Feingold – behavior and attention – remove artificial flavors, sweeteners
- FODMAPs – IBS and GI disorders - Fructo/Oligo/Galactooligo/Di/Mono-saccharides and sugar alcohols removed
- Raw foods, Whole foods, Yeast and Sugar free

CONSTIPATION



What is Constipation?

Practical definition –

Reduced frequency or ease of stool passage from what is deemed the normal or expected pattern for that individual

James R. Gray MD, FRCPC
Can J Gastroenterol. 2011 Oct; 25(Suppl B): 7B-10B

Constipation

Rome III Diagnostic Criteria

Functional Constipation

- Must include 2 or more of the following with defecations
 - Straining at least 25% of the time
 - Lumpy or hard stools at least 25% of the time
 - Sensation of incomplete evacuations 25% of the time
 - Sensation of anorectal obstruction/blockage 25% of the time
 - Fewer than 3 defecations per week
- Loose stools are rarely present without the use of laxatives
- Insufficient criteria for irritable bowel

– Longstreth, Thompson, Chey 2006

Bristol stool chart

Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on its surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges (passed easily)
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces, Entirely liquid

Lewis & Heaton 1997

American College of Gastroenterology Chronic Constipation Task Force

Definition –

“unsatisfactory defecation characterized by infrequent stool, difficult stool passage or both at least for previous 3 months”.

Difficult stool passage includes –

“straining, a sense of difficulty passing stool, incomplete evacuation, hard/lumpy stool, prolonged time to stool or need for manual maneuvers to pass stool”.

Contributors to Constipation in Adults

- Drugs
- Metabolic conditions
- Central nervous system diseases
- Enteric myopathies or neuropathies
- Organic colorectal diseases

Contributors to Constipation in Children

- Anatomy and function – neurologic, Hirschsprungs, anal atresia, stenosis
- Cows milk protein intolerance (CMP)
- Fluid – limited intake, difficulty swallowing, thickeners, fluid loss, fever
- Fiber – too much or too little
- Muscle tone – high and low
- Respiratory – ability to create pressure to push, shallow, belly breather
- Medications – anticonvulsants, antidepressants, analgesics
- Activity – low/lack of mobility, limited trunk use

Contributors to Constipation in Children

- Fatigue, anxiety, change in routine
- Negative associations with eating/stooling
- Positioning with feedings, general positioning
- Behavioral withholding
- Encopresis
- Communication – unable to let parent know
- Oral motor delays – chewing foods, strength/endurance with eating

Constipation - Suggestions

- Speak to Pediatrician
- Consult with a Pediatric Gastroenterologist
- Medication to help in the immediacy
 - Lubricants
 - bulk producers
 - stimulants
 - stool softeners
- Consult with a Pediatric Registered Dietitian/Nutritionist (RDN)

Constipation – Nutrition Help

- Dairy in diet – ensure not too much, or consider replacement with plant based milk as trial
- Hydrolyzed or elemental formula
- Blended diet by tube and off formula
- Fluid – ensuring optimal sources of fluid in overall diet. Drinkable, fruits, veggies, purees as sources.
- Fiber – too much fiber without fluid = constipation.
- Pear, prune juices or purees
- Probiotics – some help, gas producing

Other Support

- Physical therapy –
 - Improving tone, trunk strength, SPIO suit, abdominal binder, abdominal massage, positioning, breath & respiratory work
- Occupational therapy –
 - Body awareness, behavior
- Speech/Language Pathologists (feeding therapist)
 - Proper chewing, swallowing, respiration, positioning with meals
- Psychologists
 - Fears with stooling, behavior

GENERAL SUGGESTIONS



General Suggestions

- Pacing and support for sucking
- Structured mealtimes
- Supported seating
- Changes in maternal or child's diet (allergies)
- Vitamin/Mineral, Omega 3, Probiotics
- Ensure stooling and wet diapers
- 8-10+ exposures to foods, fluids
- Do not force feed

General Suggestions

- Family mealtime, role models
- Smaller, more frequent feedings/meals
- Meals for nutrition, snacks extra
- Transitions into and out of meals – positive
- Water between meals and snacks
- Include fruit/vegetable, grain, protein, fluid
- Smaller portions – allow to ask for more
- Easy to chew, swallow and process foods

Overall Mealtime Goals

- Environment
 - Soothing, supportive, appropriate, consistent
- Schedule
 - Every 2-3 hours; 4-6 or 6-8 times/day
 - 30 minute meals, 10-20 minute snacks
- Positioning
 - Upright, supported, 90/90/90
- Ability to eat
 - Independent, coordinated
- Respiration
 - Calm, efficient, organized



Thank you –

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