

Understanding the Complexity of Feeding and Eating

Dr. Kay Toomey

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During this presentation, we have 2 physical exercises we will complete.

1. Postural Exercise = please sit in a regular chair vs a couch/sofa, sitting on the floor or standing
2. Oral Motor Exercise = please have 2 medium-sized crackers available that you can eat (Saltines, Premiums, Rice Crackers etc.)

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OBJECTIVES

1. Identify the scope of the problem by outlining prevalence statistics;
2. Create a conceptualization of feeding using the analogy of an iceberg to understand how a feeding difficulty is what is seen, but that it is what is not seen that causes a child's feeding/eating and growth to falter;
3. List the 7 different areas of human function involved in being able to eat and grow well;
4. Determine how to take a multidisciplinary viewpoint to feeding assessment and treatment

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Scope of the problem

- NCD Ris C Factor Collaboration – published online October 10, 2017 by The Lancet (Dr. Ezzati – School of Public Health, Imperial College, London, UK) [http://dx.doi.org/10.1016/50140-6736\(17\)32129-3](http://dx.doi.org/10.1016/50140-6736(17)32129-3)
- Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016: a pooled analysis of 2416 population-based measurement studies in 128.9 million children, adolescents, and adults.
- 75 million girls = moderately or severely underweight; 117 million boys = moderately or severely underweight (2016)
 - 8.4% of girls; 12.4% of boys (Yanovski, 2018)
- 50 million girls and 74 million boys were obese (5-19 years of age)
 - ~ 5% of girls and ~5% of boys (Yanovski, 2018)

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Scope of the problem

- Despite the rise over the past four decades in obesity and mean BMI in children and adolescents (5-19 years) ... "more children and adolescents are moderately or severely underweight than obese" ... and "the rise in children's and adolescent's BMI has plateaued albeit at high levels, in many high-income countries"...
- "There is a need for bridging the disconnect between policies that address underweight and overweight in children and adolescents to coherently address the large remaining underweight burden while curbing and reversing the rise in overweight and obesity".
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Prevalence Data for Feeding/Eating Problems - Summary

1. A variety of studies across the world suggest between one-quarter and one-third of children, on average, will struggle with some type of feeding and/or growth issue at some time during ~ the first 10 years of life.
 - Ranges for “picky eating” typically reported from ~ 15% - 50%
 - Prevalence is dependent on the definition of “picky” used and age of child studied

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Prevalence Statistics for feeding/eating difficulties are the SAME around the world

- USA – FITS study (2004)
- Canada – Dubois et.al. (2007)
- Germany – Jacobi et.al. (2008)
- USA – Mascola et.al. (2010)
- Denmark – Micali et.al. (2011)
- Thailand – Benjasuwantep et.al. (2013)
- England – Taylor et.al. (2015)
- China – Xue et.al. (2015)
- Netherlands – Cardona Cano et.al. (2015)
- USA – Zucker et.al. (2015)
- Nigeria - Uwaezuoke et.al., 2016
- USA – Toyama & Agras (2016)
- China – Li et.al. (2017)
- Norway – Steinsbeck et.al. (2017)

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Prevalence Data - Summary

2. Prevalence Data Research identifies that there are Developmental Trends in feeding/eating difficulties

FITS (2004) = Broadest definition	Cardona Cano et.al. (2015) = Broad definition	Li et.al. (2017) = Narrow definition	Benjasuwantep et.al. (2013) = Narrow definition
4-6 months = 19% 7-8 months = 25% 9-11 months = 29% 12-14 months = 35% 15-18 months = 46% 19-24 months = 50%	1.5 years = 26.5% 3 years = 27.6% 6 years = 13.2%	6-11 months = 12.3% 12-23 months = 21.9% 24-35 months = 31.6%	12-24 months = 28.1% 25-36 months = 26.9% 37-48 months = 19%

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Prevalence Data - Summary

3. Only about one-third to one-half of these children will “out grow” their picky eating within a ~ 2-3 year time span.

Fernandez et.al. (2020)

- N = 317 Mother-Child dyads; low SES families recruited for feeding issues
- Michigan Head Start longitudinal study from 4 years of age to 9 years; evaluated at 4, 5, 6, 8 and 9 years
- **For whole population, Food Fussiness score remained more or less unchanged** (average score at age 4 years = 2.73 and at age 9 years = 2.68)
- 14% of their population who were rated as having persistently High Picky Eating had Food Fussiness scores that increased over time.

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When and Why do children around the world struggle to feed/eat well?

WHEN:

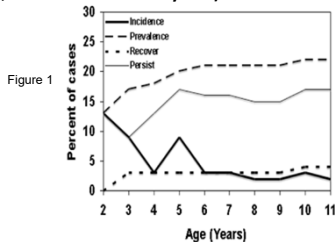
- There are 5 MAJOR developmental shifts and 4 SPECIFIC skills that occur or have to be learned properly in the process of feeding well and learning to eat.

TIMES OF DEVELOPMENTAL SHIFTS

- 4-6 months
- 12-14 months
- 18-36 months
- 5-7 years
- 9-11 years

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Mascola, A.J., Bryson, S.W., & Agras, W.S. (2010). Picky eating during childhood: A longitudinal study to 11 years. *Eating Behaviors, 11(4)*, 253-257. (N = 120; followed from 2-11 years)



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4 Specific Feeding Skills are needed

1. Sensory Tolerance/Exploration
2. Tongue Tip Lateralization
3. Rotary Chewing
4. Positive Mind Set

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When and Why do children struggle to feeding/eat?

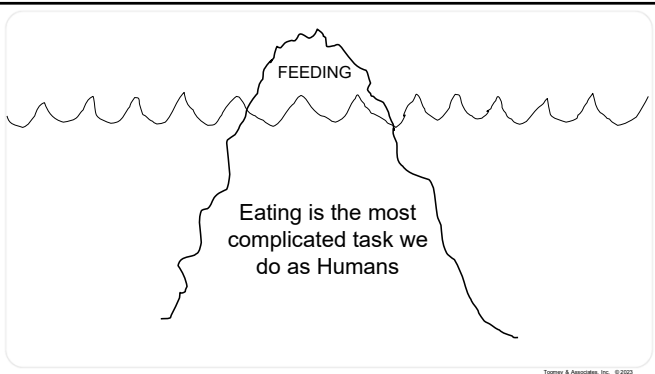
WHY

- Children who have identified or unidentified (even mild) physical and/or developmental issues often don't fully manage these transition times => picky eating or problem feeding.

FEEDING DIFFICULTIES ARE NOT ALL IN CHILDREN'S HEAD. FEEDING/EATING DIFFICULTIES ARE ALL IN THEIR BODIES

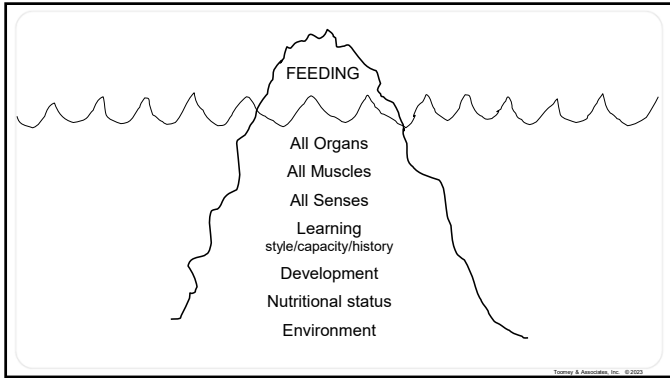
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Physical Issues to consider in Feeding/Eating:

EATING MYTH: "Eating = body's #1 Priority"

FACTS:

- **Breathing = #1 Priority**
- Postural Stability = #2 Priority

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Organ systems

- **Respiratory**
 - The Body's #1 Priority = Breathing (not eating)
 - Immature lungs/oxygen use in the NICU; chronic congestion, colds and/or sinusitis; asthma; suck-swallow-breathe coordination issues
- **Cardiac**
 - Heart difficulties can impact oxygenation and may lead to early fatigue during feedings
- **GI (gastrointestinal)**
 - If every time you eat it hurts, you learn to not eat
 - If you can't absorb calories, you can't grow

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Organ systems

- Metabolic (ability to use calories ingested)
- Skeletal (impact on postural stability)
- Endocrine (appetite and satiation peptides and hormones)
- Neurological (motor coordination, learning)
- Renal/excretory (ability to process nutrients & wastes)
- Immune System (ability to tolerate the food)

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Physical Issues to consider in Feeding:

EATING MYTH

= "Eating is the body's #1 Priority"

FACTS:

- Breathing = #1 Priority
- **Postural Stability = #2 Priority**

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POSTURAL STABILITY EXERCISE

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RE: Postural Stability

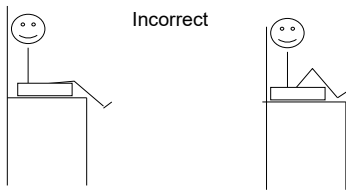
Children with Low Muscle Tone May...

- Slouch while sitting
- Prop when sitting
- Joint lock/fix
- Slide out from underneath tables/trays
- Not self feed
- Prefer to stand and eat
- Like to walk around and eat
- Appear stronger than they are because of joint locking

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90-90-90

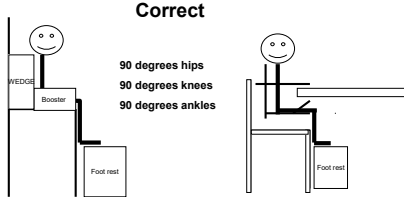


Incorrect

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Correct position = 90-90-90



Correct

- 90 degrees hips
- 90 degrees knees
- 90 degrees ankles

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Seating Recommendations:

- Infant Feeding Chair, Bouncy Seat or Swing Seat for 6 months – 7/8 months (slight tilt back)
- High Chair (upright position) for 7/8 months – 14/16 months
- Sassy seat or Adjustable Chair for > 14-16 months

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Physical Skill Issues to consider in Feeding:

Oral Motor Skills

- 4-6 month Anatomical/Reflex Shift requires a change from reflexive movement to active movement*
- Tongue Tip Lateralization
- Rotary Chewing

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Oral-motor skills critical to teach:

- Tongue Tip Lateralization
 - Required to transition onto textured table foods
 - Required to achieve correct positioning of food onto back molars for chewing "real" meat, hard/raw vegetables, and hard raw fruits
- Rotary Chewing
 - Required to eat "real" meat, hard/raw vegetables, and hard raw fruits (especially with peels)

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ORAL MOTOR EXERCISE

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Physical Skill Issue = SENSORY TOLERANCE

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SENSORY SYSTEMS:
External Environment Information

1. Visual (Vision)
2. Tactile (Touch)
3. Auditory (Hearing)
4. Olfactory (Smell)
5. Gustatory (Taste)

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SENSORY SYSTEMS:

Internal Environment Information

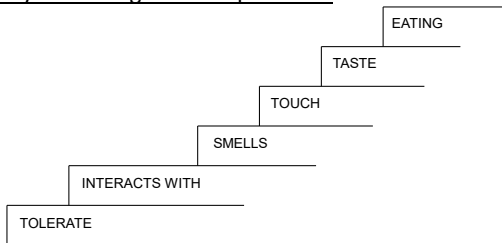
- 6. Proprioception = position, location, orientation, and movement of the body muscles and joints
- 7. Vestibular = balance and orientation in space relative to gravity
- 8. Interoception = ability to read your internal body signals
 - > Sleep
 - > Temperature recognition
 - > Toileting
 - > Illness recognition
 - > Appetite
 - > Emotion regulation

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STEPS TO EATING

Myth = Eating is a 2 Step Process



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Wearing your food is part of the process of learning to eat!

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EATING MYTH = Eating is instinctive

FACT

- Eating is driven by Appetite Instinct for the first 4-6 weeks of life
- Eating is driven by Primitive Motor Reflexes between 1 and 6 months of age
- After 6 months of age ...

Eating is a Learned Behavior

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A child has 3 choices after 4-6 months...

LEARN TO EAT ...

Learn to NOT eat

Learn to “kinda, sorta” eat

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Because after 4/6 months of age, eating is a learned behavior ...

- We need to help parents/caregivers re-think their role during meals:
 - Every meal is class
 - You are the professor
 - Your child is the student
 - Food is your subject

Goal = for your child to learn to eat any and all foods, in order to develop a healthy, lifelong relationship with food

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Critical Developmental Shifts

- 4-6 months – integration of reflexes & anatomy change
- 12-14 Months = shift in flavor perception*
- 18-36 Months = shift in self awareness
 - Aware of self as own person, so really aware of what does and doesn't feel good sensory-wise
 - Aware of own opinions and that I can actively do something about it (e.g. "no")
 - Cognitive shift from SensoriMotor to Prelogical Thinking
 - Desire to "food jag"

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Cognitive Transitions and Sensory Functioning

- Clinically see a "regression" in sensory functioning during the 3 major Cognitive Shifts (2-3 years of age; 5-7 years; 9-11 years)
 - Mascola, Bryson & Agras (2010) – picky eating peaks at 2, 5 and 10 years*
 - T.Berry Brazelton's "Touchpoints"
- Children have an increased tendency to "Food Jag" during these transition times

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Critical Developmental Shifts

- 5-7 years = shift to Logical Thinking
 - Desire to Food Jag
- 9-11 years = shift to Abstract Thought
 - Desire to Food Jag

When children shift from one cognitive stage to the next, their sensory functioning regresses

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WHAT IS A FOOD JAG?

= When a child wants to eat the same exact food prepared the same way every day or at every meal.

- **The problem with food jags**

Children eventually get burned out on these foods and they are typically permanently lost out of that child's food range

- The RULE is "if a child has X food today, they cannot have it again today. They have to wait until the day after tomorrow" = offer different foods across all meals/snack across 2 full days

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Nutrition

- Inadequate macronutrients => insufficient energy to eat and inadequate calories to grow
- Inadequate micronutrients => vitamin and mineral deficiencies interfere with appetite, endurance at mealtimes and ability to absorb and/or utilize the calories consumed

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More Ideas for How to Help

1. Family Meals
2. Model good feeding behaviors
3. Provide a Structure to the meals
4. Feeding Schedule
5. Present foods in manageable sizes, volumes and textures for this child's age and issues

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Pediatric Feeding Disorder: Consensus Definition and Conceptual Framework

Goday PS, Huh SY, Silverman A, Lukens CT, Dodrill P, Cohen SS, Delaney AL, Feuling MB, Noel RJ, Gisel E, Kenzer A, Kessler DB, de Camargo OK, Browne J, Phalen JA. Pediatric feeding disorder: consensus definition and conceptual framework. JPGN 2019;68(1):124-129.

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Pediatric Feeding Disorder =

A. A disturbance in oral intake of nutrients, inappropriate for age, lasting at least 2 weeks and association with 1 or more of the following: medical, nutrient, feeding skills, and/or psychosocial dysfunction;

AND

B. In the absence of the cognitive processes consistent with eating disorders, and the pattern of oral intake is not due to a lack of food or congruent with cultural norms.

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PFD = A disturbance in oral intake of nutrients, inappropriate for age, lasting at least 2 weeks and associated with 1 or more of the following:

- Medical dysfunction, as evidenced by any of the following:
 - Cardiorespiratory compromise during oral feeding
 - Aspiration or recurrent aspiration pneumonitis
- Nutritional dysfunction, as evidenced by any of the following:
 - Malnutrition
 - Specific nutrient deficiency or significantly restricted intake of one or more nutrients resulting from decreased dietary diversity
 - Reliance on enteral feeds or oral supplements to sustain nutrition and/or hydration

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PFD = A disturbance in oral intake of nutrients, inappropriate for age, lasting at least 2 weeks and associated with 1 or more of the following:

- **Feeding Skill dysfunction**, as evidenced by any of the following:
 - Need for texture modification of liquid or food
 - Use of modified feeding position or equipment
 - Use of modified feeding strategies
- **Psychosocial dysfunction**, as evidenced by any of the following:
 - Active or passive avoidance behaviors by child when feeding or being fed
 - Inappropriate caregiver management of child's feeding and/or nutrition needs
 - Disruption of social functioning within a feeding context
 - Disruption of caregiver-child relationship associated with feeding

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ICD-10 CODE	ICD-10 NAME
R13.0	Aphagia
R13.10	Dysphagia, unspecified
R13.11	Dysphagia, oral phase
R13.12	Dysphagia, oropharyngeal phase
R13.13	Dysphagia, pharyngeal phase
R62.51	Failure to thrive (child)
R62.52	Short stature (child)
R63.30	Feeding difficulties, unspecified
R63.31	Pediatric feeding disorder, acute
R63.32	Pediatric feeding disorder, chronic
R63.39	Other feeding difficulties
R63.4	Abnormal weight loss
R63.5	Abnormal weight gain
R63.6	Underweight
R63.8	Other symptoms and signs concerning food and fluid intake

ICD-10-CM Codes Available for Feeding Related Difficulties
 *R63.3 Feeding Difficulties was deleted from the ICD-10-CM in October 2021. The R63.3 code was replaced by the diagnosis codes bolded. FEEDING MATTERS (WWW.FEEDINGMATTERS.ORG)

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Kovacic et.al. (2020)

- Reviewed data bases from 3 insurance cohorts between 2009 and 2014 using a variety of billing codes as surrogate markers for Pediatric Feeding Disorder.
- N = 56 million

Found that more than 1 in 37 children in the USA under the age of 5 years, annually could receive a diagnosis of a Pediatric Feeding Disorder.

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The SOS Approach to Feeding

**Sequential Oral Sensory
And Save Our Ship!**

Dr. Kay Toomey

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www.sosapproach.com

- Attend an SOS Training Conference
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- Take the free Parent/Caregiver Workshop
<https://sosapproachtofeeding.com/parent-workshop-when-children-wont-eat/>
- Access information about SOS trained providers in your area
<https://sosapproachtofeeding.com/locate-a-therapist>
- Contact the SOS Feeding Team info@sosapproach.com

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Register for the upcoming SOS Approach to Feeding Main Training Conference in Vienna, Austria

- October 2nd – October 6th , 2024
- <https://www.sos-feeding-wien.eu/>
- If you register now (by midnight Austria time March 28), you will receive **50 Euros off** the registration price!
- You will also receive a **FREE copy** of Dr. Toomey's Differential Decision Tree: Picky Eaters vs Pediatric Feeding Disorder (PFD) vs Avoidant-Restrictive Food Intake Disorder (ARFID)

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If you have questions for Dr. Toomey, you may put them in the Question & Answer Box.

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