



Harmonizing Feeding Therapy with Different Cognitive Developmental Stages in Pediatric Feeding Disorders

Lindsay Beckerman, MOT, OTR/L
Occupational Therapist
Pediatric Feeding Specialist
Paid speaker for Toomey & Associates
Unpaid Board Member of Charlotte's Day
No other financial/non-financial disclosures

Kelly Fitzpatrick, MA, CCC-SLP, CLC
Speech Language Pathologist
Pediatric Feeding Specialist
Paid speaker for Toomey & Associates
No other financial/non-financial disclosures

Objectives

1. Summarize the pivotal implications of a child's developmental stage for feeding therapy strategies.
2. Explain how a feeding therapist's approach and interactions are influenced by the child's Cognitive Developmental stage.
3. Understand how a child's relationship with food often shifts as they progress through the cognitive stages.

Sensorimotor

DEVELOPMENTAL AGE: BIRTH TO 2/3 YEARS



Sensorimotor

- Understanding of the world is based on physical experiences (no intentional mental thought; no "theory of mind")
- Memories encoded in physical/body-based experiences
- Primary narcissism & Symbiosis with Primary Caregiver to 12-14 months of age
- Simple motor & object 1-word associations & 1-step directions develop over time

(Toomey & Dodrill, 2015; Demetriou et al, 2017; Malik & Marwaha, 2022)

Food Thoughts

- Meals and snacks are the same thing - they all help sustain life
- Children are confused by invisible nutrients existing inside a whole food
- They understand that food goes into the body but not how it changes the body
- They can name foods that are healthy but not why they are healthy
- Base liking of food on texture and packaging (appearance), more than taste
- May refuse foods if they can't manage the sensory properties of the foods (i.e., texture or taste), or if they do not have the correct oral-motor skills (i.e., the physical sensations of the food are not positive).
- Infants trust their caregivers to give them 'safe' foods
- The facial expressions made by their caregivers during meals matter

Contento (1981); Rozin et.al. (1996); Zeinstra et.al. (2007); Gripshover & Markman (2013); Rohifs-Dominguez (2020)

Application to Therapy

- Sensory exploration of the body and the world is through movement
- Incorporate their favorite ways to play into your therapy
- Primitive motor play and very simple games that act on the food to move or change it, such as banging, shaking, spinning, lining up toys, tug-of-war, smashing foods, object permanence games (i.e., peek-a-boo; hide-n-seek), building towers and knocking them over, dump and fill, making simple shapes, lining foods up
- Interesting motor actions are repeated
- Take as much of your language out of these games as possible. Use single words, vocalizations, make funny sounds, or use gestures to communicate.
- Often enjoy repetitive songs with actions like "Wheels on the Bus", "Itsy Bitsy Spider", "We are the Dinosaurs", Raffi's "Brush Your Teeth" song

Pre-Operational (Magical Thinking)

DEVELOPMENTAL
AGE: 2/3 TO 5/7 YEARS



Pre-Operational Thinking (Magical Thinking)

- Begin to think in words and pictures; develop "Theory of Mind"
- Imagination & pretend play emerges, but they take everything you say literally
- Have difficulty understanding other's viewpoint, or that others understand her experience of the world.
- Lack of logic means connections between events are made because they occur close in time (when events are often not connected)
- Use Magic & Mastery to help with irrational fears
- Difficulties being able to understand others viewpoint, or that others can understand their experience of the world
- Believe everything is real and alive; believe in magic and fairytale creatures

(Toomey & Dodrill, 2015; Piaget, 1952)

Food Thoughts

- Believe non-tasty foods are appropriate for adults only
- Base their liking of a food based on its' appearance (packaging)
- Prefer soft, high-energy foods (pancakes, French Fries) and sweet fruits
- Dislike bitter veggies (spinach)
- Reject foods based on contamination (with disliked food or non-food), and appearance, distaste, or expectations of unpleasant consequences of eating a food.
- Categorize foods based on color and shape
- Label only salty foods correctly consistently

Contento (1981); Rozin et al. (1996); Zeinstra et al. (2007); Gripschover & Markman (2013); Rohnfs-Dominguez (2020)

Application to Therapy

- Still need to use the play to explore and learn about new foods; however, it will be more imaginative
- Begin to use simple teaching about how the body works and why we need to eat
 - "That was wet for your hands, you can wipe them off on a washcloth"
 - "We need energy from food to play"
 - "Your tummy is grumbling because we're hungry"

Application to Therapy

- Observe and ask what their favorite things to do and play are. What are they interested in? How can we incorporate these into the child's play with food?
- Example ideas:
 - Create Paw Patrol characters out of food, pretend like you are taking the baby doll (food) to the store, create a car or phone out of the food
 - May enjoy creating "magic potions" and "fairy dust" out of food

Concrete Operations (Black & White Thinking)

DEVELOPMENTAL
AGE: 5/7 TO 9/11 YEARS



Concrete Operations (Black & White Thinking)

- Children begin thinking logically about concrete events
- They can follow multiple step sequences
- Children can reason through a problem if they are allowed to manipulate the materials
- Children begin to see and understand other people's viewpoints and begin to develop true empathy
- Thinking becomes more logical and organized, but still very concrete
- Very rule based; their favorite phrase is "that's not fair!"
- Gain control over their imagination and understand what is real vs. not real

(Toomey & Dodrill, 2015; Piaget, 1952)

Food Thoughts

- Know food makes us healthy, strong and helps us grow, but no understanding of how this happens or why; they just know food changes in their stomach
- Base liking of food on what the specific taste is (sweetness, sourness), how familiar the taste is, and whether it is named "healthy" or eaten by adults.
- Reject foods based on the idea of what it is or where it comes from, taste, and texture
- Often give excuses to get out of eating foods they don't like ("I'm not allowed!")
- Prefer soft, high-energy foods AND composite dishes (pizza)
- Dislike veggies with bland tastes (French beans)
- Often believe they have to eat the food the way it is prepared and served by the adult

Contento (1981); Rozin et al. (1996); Zeinstra et al. (2007); Griphover & Markman (2013); Rohifs-Dominguez (2020)

Application to Therapy

- Teach children to identify the qualities of the food using 'science' words using their senses
 - Look: Color, shape, size
 - Feel: Smooth or bumpy, wet or dry, greasy or powdery, temperature
 - Smell: Small, medium or large smell? Sweet, sour, spicy, savory, bread-y, plant-y, nutty, bitter etc.
 - Taste: Small, medium or large taste? Sweet, sour, spicy, savory, bread-y, plant-y, nutty, bitter etc.

Application to Therapy

- Help the child identify which qualities of the food don't work for their body, and experiment together to find several ways to make the food different and try to find a way to make the food work better for them
 - Change the look: Cut a smaller piece; use cookie cutters; change the color with food coloring/sprinkles
 - Change the feel: Toast it, change the temperature, brush off the powder, dry it off
 - Change the smell: Add a seasoning powder (spices, drink mix powder, etc.), add a sauce or condiment
 - Change the taste: Add a seasoning powder (spices, drink mix powder, etc.), add a sauce or condiment

Formal Operations Stage

DEVELOPMENTAL AGE:
9/11 AND ABOVE



Formal Operations (Abstract Thought)

- Abstract thought and Deductive Reasoning emerges
- Can reverse an "operation" directly in the mind versus needing to act on the world
- Begin to think abstractly and reason about hypothetical problems
- Understand that procedures need to be done or medications taken even if it hurts or tastes bad
- Social cognition apart from self develops
- Thinks about the future & future goals

(Toomey & Dodrill, 2015; Piaget, 1952)

Food Thoughts

- Begin to understand that there are some things we don't like to do, but that we do them anyway because they are good for us
- Preferences about fruits and vegetables are dependent on good taste, but also the texture, and smell
- Understand that they can use a preferred topping to make a food more appealing
- Reject foods based on taste (especially sour, bitter) and unpleasant/aversive experiences (expected or actually experienced)
- Can correctly label salty, sour, sweet, and bitter
- Begin to shift from "what is wrong with the food" to "what is wrong with ME that I can't eat that food"
- Begin to develop an identity of themselves as "a person who doesn't eat X"

Contento (1981); Rozin et al. (1996); Zeinstra et al. (2007); Gripshover & Markman (2013); Rohlfis-Dominguez (2020)

Application to Therapy

- Continue to practice labeling the sensory qualities of foods
- Continue to identify which qualities of the food don't work for their body, and experiment with changing that quality to make it work better
- Discuss their past experience with food, recognizing what may have contributed to their current challenges, including inefficient oral motor skills, medical issues, or sensory integration and processing differences. Formulate a new, more helpful story around their past learning about food.
- Identify and practice strategies that support regulation



Final Thoughts:

1. Observe the child's play, interests, and cognitive thoughts. What is meaningful for this child? What do they enjoy doing? What Cognitive Stage does this fit into?
2. Match this information with how you interact and learn about new foods in Feeding Therapy.

References

- Behzadpoor, S., Pourtemad, H., & Akbari Zardkhaneh, S. (2022). Cognitive Prerequisites in Development of Childhood Anxiety: An Integrative Literature Review and Thematic Analysis. *Iran J Child Neurol*, 16(3), 9-27. <https://doi.org/10.22037/ijcn.v16i4.31467>
- Contento, I. (1981). Children's thinking about food and eating—a Piagetian-based study. *Journal of Nutrition Education*, 13(1). [https://doi.org/10.1016/s0022-3182\(81\)80017-9](https://doi.org/10.1016/s0022-3182(81)80017-9)
- Demetriou, A., Spanoudis, G., Kazi, S., Mouyi, A., Žebec, M. S., Kazali, E., Golino, H., Bakracevic, K., & Shayer, M. (2017). Developmental Differentiation and Binding of Mental Processes with g through the Life-Span. *J Intell*, 5(2). <https://doi.org/10.3390/jintelligence5020023>
- Frerichs, L., Intolubbe-Chmil, L., Brittin, J., Teitelbaum, K., Trowbridge, M., & Huang, T. T. (2016). Children's Discourse of Liked, Healthy, and Unhealthy Foods. *J Acad Nutr Diet*, 116(8), 1323-1331. <https://doi.org/10.1016/j.jand.2016.01.014>
- Lane, R. D., & Smith, R. (2021). Levels of Emotional Awareness: Theory and Measurement of a Socio-Emotional Skill. *J Intell*, 9(3). <https://doi.org/10.3390/jintelligence9030042>

References

- Machado, B. C., Dias, P., Lima, V. S., Campos, J., & Gonçalves, S. (2016). Prevalence and correlates of picky eating in preschool-aged children: A population-based study. *Eat Behav*, 22, 16-21. <https://doi.org/10.1016/j.eatbeh.2016.03.035>
- Machado, B. C., Dias, P., Lima, V. S., Carneiro, A., & Gonçalves, S. (2021). Frequency and Correlates of Picky Eating And Overeating in School-aged Children: A Portuguese Population-based Study. *Journal of Child and Family Studies*, 30(5), 1198-1213. <https://doi.org/10.1007/s10826-021-01936-0>
- Malik, F., & Marwaha, R. (2022). Cognitive Development. (2023 Apr 23). Treasure Island (FL): StatPearls Publishing; 2023 Jan-. <https://www.ncbi.nlm.nih.gov/books/NBK537095/>
- Piaget, J. (1952). The origins of intelligence in children (M. Cook, Trans.). International Universities Press
- Rohlfis Domínguez, P. (2020). New insights into the ontogeny of human vegetable consumption: From developmental brain and cognitive changes to behavior. *Dev Cogn Neurosci*, 45, 100830. <https://doi.org/10.1016/j.dcn.2020.100830>

References

- Rozin P., Millman L., Nemeroff C. (1986). Operation of the laws of sympathetic magic in disgust and other domains. *Journal of Personality and Social Psychology*, 50, 703-712.
- Siegler, R. S., DeLoache, J. S., & Eisenberg, N. (2003). *How children develop*. New York: Worth.
- Toomey, K. and Dodrill, P. (2015). Cognitive Stages of Development (Piaget) and the Impact of Cognitive Development on Feeding.
- Van Tine, M. L., McNicholas, F., Safer, D. L., & Agras, W. S. (2017). Follow-up of selective eaters from childhood to adulthood. *Eat Behav*, 26, 61-65. <https://doi.org/10.1016/j.eatbeh.2017.01.003>
- Wadsworth, B. J. (2004). *Piaget's theory of cognitive and affective development: Foundations of constructivism*. New York: Longman.
- Zeinstra, G. G., Koelen, M. A., Kok, F. J., & de Graaf, C. (2007). Cognitive development and children's perceptions of fruit and vegetables; a qualitative study. *International Journal of Behavioral Nutrition and Physical Activity*, 4(1), 30. <https://doi.org/10.1186/1479-5868-4-30>