

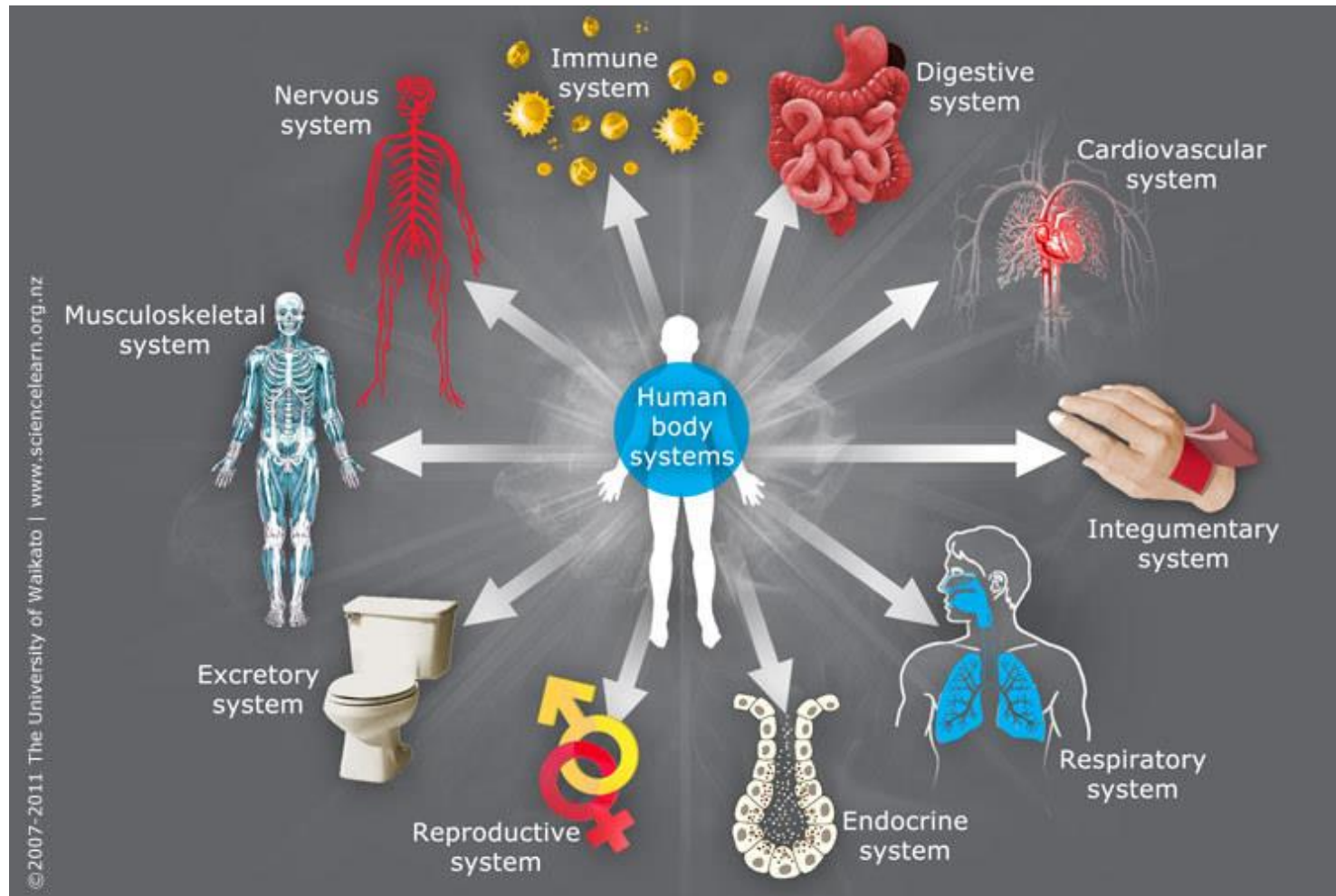
Feeding for Children with Down syndrome

Erin Cochran, MA, OTR/L
Occupational Therapist
Oregon Health and Science University
September 2021

Feeding is complicated (for everyone)!

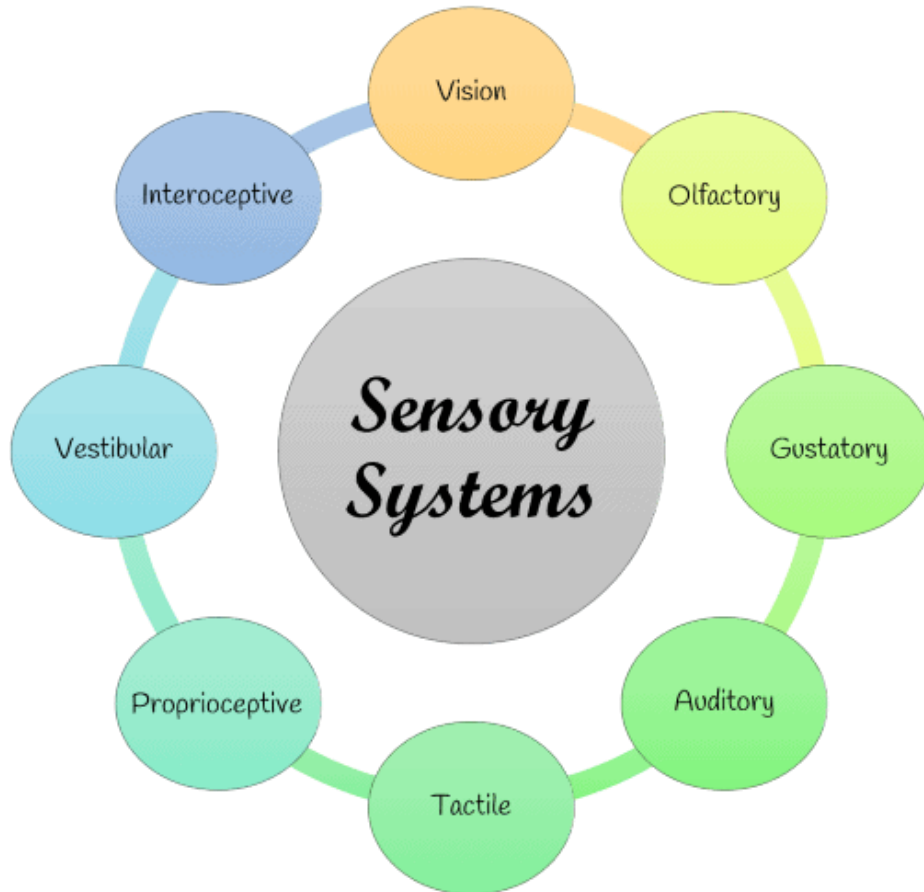


Requirements for Eating

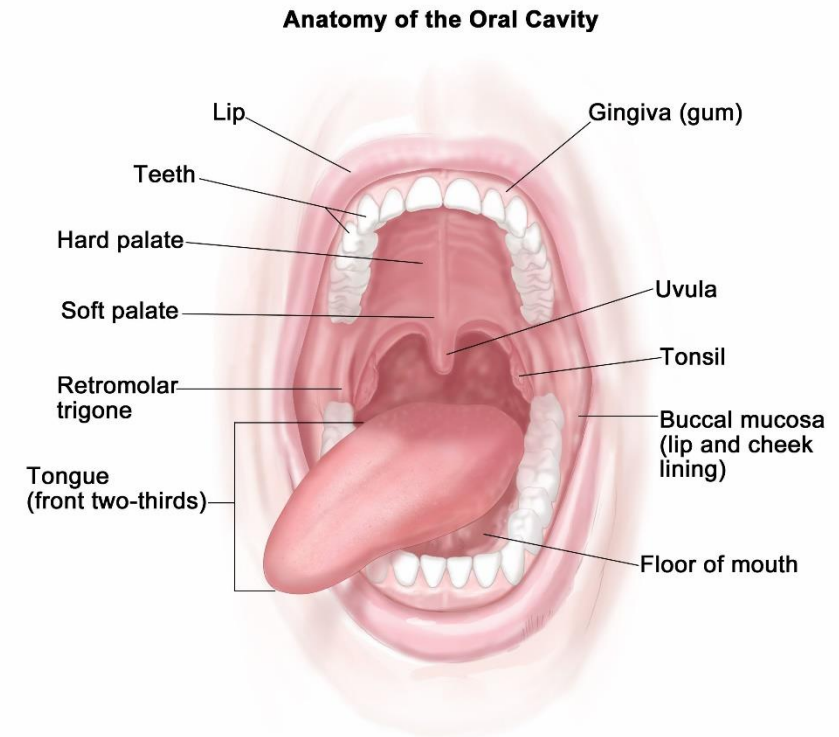


Requirements for Eating

- Sensory Systems



- Oral Structures



So what happens if eating is hard?...

- What is impacted?

- Nourishment
- Social experiences
- Growth

- Who is impacted?

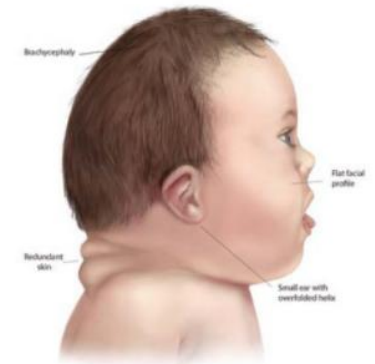
- Individual
- Parents
- Siblings
- Teachers
- And more



Complicating factors for children with Down syndrome

Some common physical features of Down syndrome include:

- A flattened face, especially the bridge of the nose
 - Almond-shaped eyes that slant up
 - A short neck
 - Small ears
 - Open mouth posture
 - Small hands and feet
 - Poor muscle tone or loose joints
 - Shorter in height as children and adults
-
- <https://www.cdc.gov/ncbddd/birthdefects/downsyndrome.html>



Frequently Observed Challenges

- Swallowing difficulties
- Poor latch
- Lengthy or very brief mealtimes
- Fatigue
- Limited chewing
- Overstuffing
- Pocketing of food
- Gagging
- Poor oral motor coordination
- Coughing
- Growth challenges
- Difficulties with utensil use
- And more...

How do we get from here to there?



TRANSITIONS

Transitions between stages

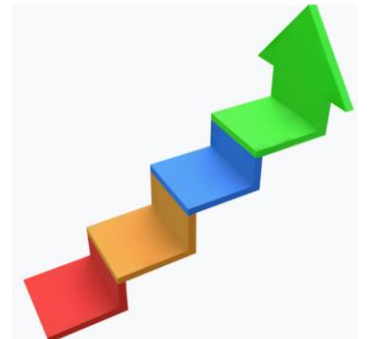
Liquids → Purees → Thicker purees with textures → Small soft foods → All table foods



- Focus on skill rather than age
- Pay attention to gross motor development for clues
- Each stage requires maturing oral motor coordination

**Typically developing* develop mature oral motor skills by age 2-3 years

**We expect a slower rate of maturation for children with Down syndrome*



Strategies to Improve Feeding Skills

Infancy

- Slower flow for bottles
 - Thickening liquids if necessary
 - Supplementing with formula, or increasing the concentration of formula, if necessary
 - Positioning alternatives for breast and bottle feeding
 - Assisting with pacing for bottle feeding
-
- https://www.ndsccenter.org/wp-content/uploads/CDSS_breastfeeding_brochure.pdf



Strategies to improve Feeding Skills

Introducing complementary foods

- Quality over Quantity
 - Ensure feeding readiness cues
 - Allow increased time and opportunities to explore the foods
 - Stronger flavors are often helpful for children with low muscle tone
 - Ensure optimal positioning, including foot support
 - For tongue thrust: place spoon with pressure in center of tongue
 - Incremental texture changes
- <https://abilitypath.org/ap-resources/down-syndrome-mealtimes-with-your-child/>



Strategies to improve Feeding Skills

Chewing

- Encourage tongue to move side to side
- Practice with crispy dissolvable foods
- Use of “hard munchable” foods for lateralization
- Teach proper bite size
- Mixed textures are especially challenging
- Avoid choking hazards until age 5
- Continue with modifications of foods

Utensils

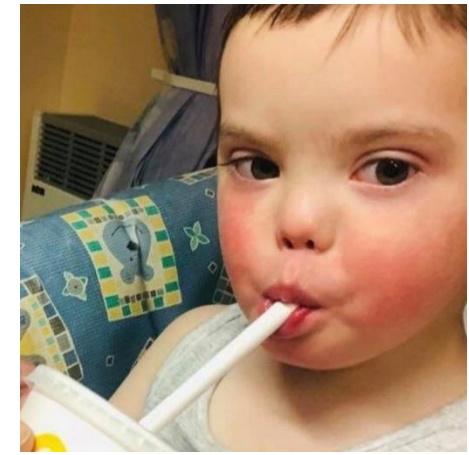
- Smaller utensils with a thicker handle
- Angled utensils



Strategies to improve Feeding Skills

Drinking (Cups and Straws)

- Provide increased flavor/temperature differences
- Alternative straw cups
- Practice with thicker beverages
- For open cups, use small sized cups to begin
- Make sure tongue is not under the cup
- Provide increased jaw stability
- As always, ensure proper positioning



Strategies to improve Feeding Skills

As children age:

- Encourage participation in meal planning and preparation
- Participate in family/group meals
- “Learning plate”
- Always provide at least 1-2 preferred foods
- Continue with modifications for food as needed
- Continue to monitor weight and growth
- <https://www.ndss.org/resources/nutrition/>



Signs medical attention is needed



- Child continues to resist eating
 - Child will only eat certain foods or textures and nothing else
 - Child is not gaining weight appropriately
 - Child frequently coughs or chokes on foods or liquids
 - Child has frequent, unexplained fevers or pneumonia (signs of aspiration).
 - Child has a long lasting, wet cough or noisy breathing.
-
- <https://abilitypath.org/ap-resources/down-syndrome-mealtimes-with-your-child/>

Questions?



References

- Anil, M. A., Shabnam, S., & Narayanan, S. (2019). Feeding and swallowing difficulties in children with Down syndrome. *Journal of Intellectual Disability Research*, 63(8), 992-1014. <https://doi.org/10.1111/jir.12617>
- Bull, M. J. (2011). Health supervision for children with Down syndrome. *Pediatrics*, 128(2), 393-406. <https://doi.org/10.1542/peds.2011-1605>
- Cooper-Brown, L., Copeland, S., Dailey, S., Downey, D., Petersen, M. C., Stimson, C., & Van Dyke, D. C. (2008). Feeding and swallowing dys-function in genetic syndromes. *Developmental Disabilities Research Reviews*, 14, 147– 157. <https://doi.org/10.1002/ddrr.19>
- Hennequin, M., Faulks, D., Veyrune, J. L., & Bourdiol, P. (1999). Significance of oral health in persons with Down syndrome: A literature review. *Developmental Medicine and Child Neurology*, 41(4), 275-283. <https://doi.org/10.1017/s0012162299000596>
- Jackson, A., Maybee, J., Moran, M. K., Wolter-Warmerdam, K., & Hickey, F. (2016). Clinical characteristics of dysphagia in children with Down syndrome. *Dysphagia*, 31(5), 663-671. <https://doi.org/10.1007/s00455-016-9725-7>
- Lewis, E., Kritzinger, A. (2004). Parental experiences of feeding problems in their infants with Down syndrome. *Down Syndrome Research and Practice*, 9(2), 34-42. <https://doi.org/10.3104/reports.291>
- Medlen, J. G. (2002). *The Down syndrome nutrition handbook: A guide to promoting healthy lifestyles*. Woodbine House, Inc.
- Narawane, A., Eng, J., Rappazzo, C., Sfeir, J., King, K., Musso, M.F., & Ongkasuwan, J. (2020). Airway protection & patterns of dysphagia in infants with Down syndrome: Videofluoroscopic swallow study findings & correlations. *International Journal of Pediatric Otorhinolaryngology*, 132(2020), 1-4. <https://doi.org/10.1016/j.ijporl.2020.109908>
- Pilcher, E. S. (1998). Dental care for the patient with down syndrome. *Down syndrome research and practice*, 5(3), 111-116. <https://doi.org/10.3104/reviews.84>
- Smith, M. D. & Landman, M. P. (2019). Feeding outcomes in neonates with trisomy 21 and duodenal atresia. *Journal of Surgical Research*, 244, 91-95. <https://doi.org/10.1016/j.jss.2019.06.030>
- Stanley, M. A., Shepherd, N., Duvall, N., Jenkinson, S. B., Jalou, H. E., Givan, D. C., Steele, G. H., Davis, C., Bull, M. J., Watkins, D. U., & Roper, R. J. (2019). Clinical identification of feeding and swallowing disorders in 0-6 month old infants with Down syndrome. *American Journal of Medical Genetics Part A*, 179(2), 177-182. <https://doi.org/10.1002/ajmg.a.11>