



Pediatric Feeding and Dysphagia

Dear Fellow Feeders;

Dear Fellow Feeders,
 Happy New Year! In this issue we feature articles about feeding infants with clefts, constipation, and autism. Check out our featured recommendation – Gastroatlas, it’s really cool. I get very excited about free info and this converts right into power point for

presentations.
 On page 8, I’ve posted a question about tolerance of DHA formulas? We’re wondering what feeders are experiencing with these formulas. Please take a few minutes to email me your thoughts.

-Krisi Brackett MS SLP/CCC

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IT DOESN'T TAKE A ROCKET SCIENTIST

Kim S. Uhrich, MSW, *UNC Department of Surgery*

I am often asked how a social worker became involved in feeding children born with cleft palate. More than twenty years ago the nursing staff would approach me on the floor while I was doing psychosocial assessments for the cleft palate team. Their concerns regarding children with cleft palate in particular were:

- 1) the mothers were the most anxious on the "ward",
- 2) the infants who had cleft lip as well as cleft palate were unattractive and for some, difficult to look at, and
- 3) the babies just took too long to feed, and feeding was one of the nurses responsibilities.

There were no speech pathologists, physical therapists or occupational therapists to consult on feeding. Working closely with the surgeons on the team, it became clear that with the right combination of **supplies, positioning and technique**, any child with a cleft palate could be easily fed. Soft, thinned walled nipples were easier for infants to compress. Supplies needed to be easily adapted to meet individual infant needs, but not interfere with the normal suck, swallow and respiration mechanism. And lastly, adequate calorie in-take for growth could be easily achieved. A semi sitting position for feeding helped reduce the incidence of nasal regurgitation and any pulsing of a nipple or bottle needed to be coordinated with the infants own feeding rhythm to reduce the risk of aspiration but also finish a feeding session in a timely manner.

Over the years as interest in feeding expanded, the supplies specific to infants with cleft palate became more sophisticated. From the cross cut,

Special Points of Interest:

- Current information
- New products
- Research and publications
- Education

Editorial assistance provided by Elizabeth Crais Ph.D. CCC SLP, Division of Speech and Hearing Sciences, UNC-Chapel Hill and Cathy Fox MS OTR/L, Private Practice, Frederick, MD

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IT DOESN'T TAKE A ROCKET SCIENTIST

Kim S. Uhrich, MSW, UNC Department of Surgery

preemie, lamb, Brophy, and Ross nipples, to the Mead Johnson Cleft Palate Nurser (assisted delivery system), the Haberman Feeder, and the Pigeon Bottle (self feeding/one way valve systems), great strides have been made to accommodate both infant and parent needs. Interest in feeding infants with cleft palate also increased dramatically as insurance companies recognized the contributions made in this area by a variety of healthcare clinicians.

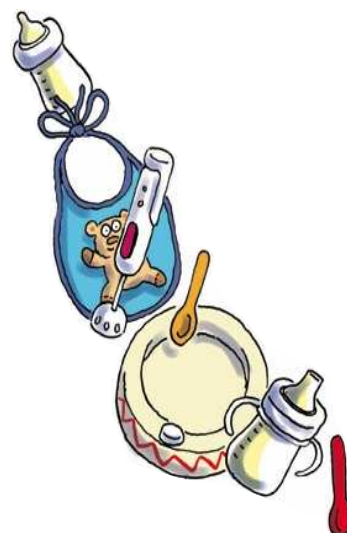
Essentially, the type of cleft coupled with the feeding components will determine the most successful feeding method:

Cleft lip only: If an infant has a cleft lip only, the feeding components of suction, compression, swallow and respiration are all present, and the infant will do nicely with a wide based nipple and even breastfeeding directly at the breast.

Cleft Palate: An infant with a cleft palate will generally have difficulty with suction, less difficulty with compression but will have a good swallow and respiration, necessitating soft walled nipples, assisted delivery systems or self feeding systems with one way valves.

Cleft lip and palate: Infants with cleft lip and cleft palate will have the same feeding components as the infant with cleft palate only, but will be more successful with the assisted delivery or self-feeding/one way valve systems. Infants with cleft palate are rarely successful at direct breastfeeding.

Seeing the relief in a parents face when they assimilate this information then feed their infant successfully for the first time is indeed rewarding. It doesn't take a rocket scientist, just some information, the correct feeding system and patience. If there are still problems, the prudent nurse/clinician will immediately refer the infant to a specialized feeding team.



For more information:

Check out this classic article: Clarren, S.K., Anderson, B.A., Wolf, L.S. (1987). Feeding infants with cleft lip, cleft palate, or cleft lip and palate. *Cleft Palate Journal*, July, vol.24, no.3.

Or look at:

Feeding an Infant with a Cleft (Kim Uhrich M.S.W., C.C.S.W was the major contributor to this booklet distributed by the cleft palate foundation)
Contact the Cleft Palate Foundation
104 South Estes Dr. , suite 204
Chapel Hill, NC 27514
(800)24-cleft, <http://www.cleftline.org/>

Bottle and Nipples for Feeding the Child with Cleft Lip and/or Palate

When choosing feeding supplies:

1. Soft thin walled nipple that compresses easily
2. A nipple that allows a moderate flow rate
3. A method that coordinates well with the normal coordination of suck, swallow, and breathing.

NUK Nipple: a soft walled nipple with a wide base available in most grocery stores.

Mead Johnson Cleft Palate Nurser: has a soft, thin walled long nipple that is already cross cut and a soft bottle that can be squeezed.

The Haberman Feeder: has a large, squeezable nipple with a slit rather than a cross cut. Marking around the base of the soft pliable nipple indicate the position of the slit relative to the infant's mouth and indicate flow rate. A one way valve allows the milk into the nipple, reducing the amount of air swallowed. Nipple comes in 2 sizes –regular and mini.

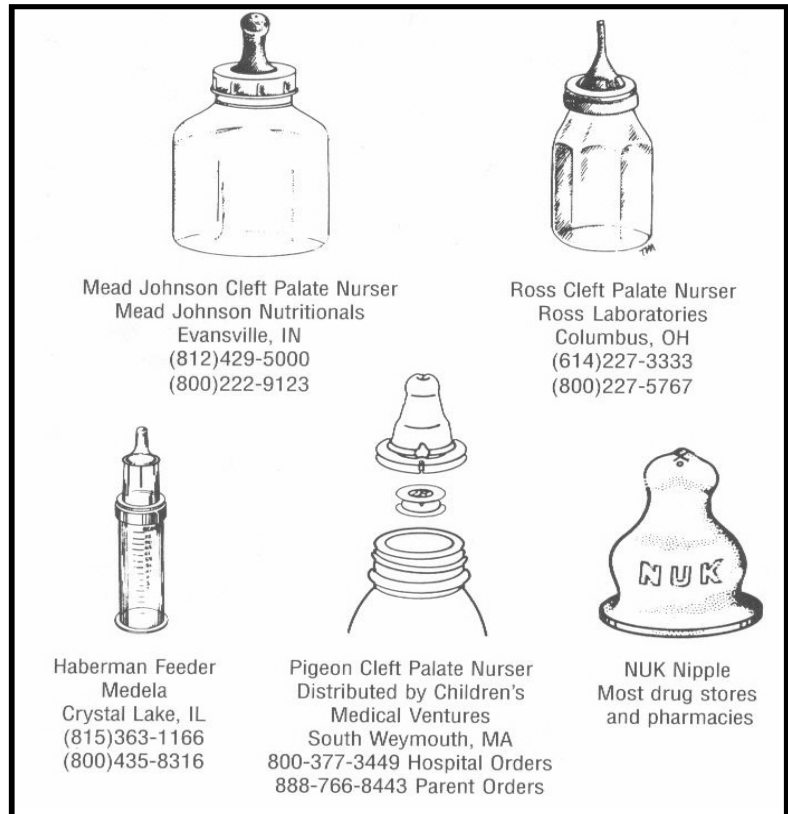
The Pigeon Bottle: has a nipple that has a Y cut and is slightly larger than other nipples. It is firm on the top and soft on the bottom allowing for easy tongue compression to elicit liquid. An air valve prevents the nipple from collapsing and tightening/loosening the collar determines milk flow. A one way valve keeps milk in the nipple allowing for less swallowed air.

The Ross Cleft Palate Nurser: a soft nipple shaped like a tube to direct milk flow past the cleft. (not used as much anymore)

Techniques/tips:

1. Try angling the nipple to the side of the mouth so milk is directed away from the cleft. This may not be necessary when using the Pigeon bottle or Haberman which fills the mouth and covers the cleft.
2. An upright position may decrease nasal regurgitation.
3. For an infant with a retracted tongue and/or micronathia, sidelying will prevent gravity pulling the tongue farther back.

Information and illustrations are taken from Feeding an Infant with a Cleft, Cleft Palate Foundation.



Recommendation:



<http://www.GastroAtlas.com> : I just discovered this site which was referenced on the Dysphagia listserv. It's informative and educational with top researchers contributing their information and slides. Best of all it is free and you can use the slides in your own presentations! GastroAtlas is the online version of Mark Feldman's renowned Atlas of Gastroenterology and Hepatology. GastroAtlas is a vast collection of clinical, radiological, pathological and histological images and artworks, all of which can be freely used to enliven your presentations and lectures. Check out the section on pediatric GI problems!

- Chapter 1: The newborn
- Chapter 2: Nutrition
- Chapter 3: Neonatal Surgery and the Acute Abdomen
- Chapter 4: Gastroesophageal Reflux
- Chapter 5: Peptic Ulcer Disease and Helicobacter pylori-Related, Gastroduodenal Disease in Pediatrics
- Chapter 6: Diarrheal Disease in Infants and Children
- Chapter 7: Inflammatory Bowel Disease in Pediatrics
- Chapter 8: Functional Bowel Disorders in Pediatrics
- Chapter 9: Cystic Fibrosis
- Chapter 10: Anorectal Malformations
- Chapter 11: Pediatric Liver Disease

Feeding problems among children with Autism Spectrum Disorders

Part I: Description and Demographics

Keith Williams, Pediatric Feeding Program, Hershey Medical Center

In this two-part article, information about the feeding problems among children with autism spectrum disorders will be provided. In the first part, two samples of children will be briefly discussed, a clinical sample and a community sample. In the second part, empirically-based treatment approaches will be summarized.

Problems with feeding and eating are commonly mentioned as being characteristic of children with autism spectrum disorders. Despite this, there is little research describing these feeding problems. While our feeding program sees children with autism spectrum disorders with a range of feeding issues, most of these children are referred for food selectivity by type, which we define as a diet so limited that it is nutritionally inadequate. Some caregivers describe diets containing only a few foods, often starches or snack foods. Other caregivers describe their children eating minimal amounts of solid food and drinking large amounts (up to 90 ounces/day) of milk, juice, or formula. In addition to food selectivity, caregivers describe a variety of other mealtime problems. Some children do not sit at the table, some refuse to self-feed, and still others eat only if specific utensils, plates, or cups are available. The amount of resistance to new or less preferred foods varies widely. In some cases, children will allow these foods on their plates and just avoid eating them, in other cases children will gag and sometimes vomit when a new food is presented, and in a few cases, when food is brought into the same room as the child.

In order to examine the types of food eaten by children with autism spectrum disorders, we recently reviewed the cases of those children who were seen only for selectivity by food type. Our sample consisted of 48 children (42 male) whose ages ranged from 24 to 124 months. During the evaluation, we asked caregivers to list all of the solid foods consumed by their children. On average, these children ate 9.9 different foods. When we summarized the foods by group, we found the children ate an average of 4.5 starches, 2.0 proteins, 1.3 dairy products, 1.3 fruits, and 0.7 vegetables. There were 11 children who ate neither fruits nor vegetables of any kind. In addition to their limited diets, we asked caregivers about a range of feeding and mealtime issues. In 15 children, caregivers reported foods needed to be prepared a specific way. Caregivers also reported texture sensitivity in ten of the children, gagging with new foods in ten of the children, and an insistence on the same utensils, cup, or plate occurred for five children.

While we were seeing children with autism spectrum disorders with extremely limited diets, it was not clear if the feeding problems seen in our clinic were common among the more general population of children with autism spectrum disorders. In order to explore this hypothesis, we recruited a community sample of 138 children with autism spectrum disorders and 298 children without autism¹. The caregivers of these children, aged 5 to 12 years reported the foods eaten by their children, common feeding problems, as well as medical and developmental issues. Compared to caregivers of children without autism, the caregivers of the children with autism reported significantly more problems with texture, insistence on specific utensils, and insistence on foods being prepared a specific way. The number of foods consumed was much narrower for the children with autism compared to the children without autism (this data is not, however, directly comparable since the data for the community sample included beverages for the dairy and fruit groups, while the data above includes only solid foods). Table One shows the foods consumed for both groups by food group. We measured the severity of the children's autism through the use of the Gilliam Autism Rating Scale. We found no relation between the severity of the children's autism and the number of food eaten or the severity of their feeding problems.

Table 1: Foods Consumed

Group	Starches Eaten	Dairy Eaten	Proteins Eaten	Fruit Eaten	Vegetable Eaten
With autism	15.8	4.3	7.8	8.1	4.0
Without autism	24.1	8.1	14.2	15.8	8.2

While the variety of foods eaten by the children with autism seen in our clinic was narrower than that of the children with autism in our community sample, both groups ate significantly fewer foods than children without autism. Caregivers of children with autism, both in the clinical and community samples, also reported significantly more

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Feeding problems among children with Autism Spectrum Disorders

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(Continued from page 4)

feeding issues. In our clinic, many caregivers ask about the etiology of their children's feeding issues. Unfortunately, it is not clear at this point why some children with autism spectrum disorders eat such a limited variety of foods or have other mealtime problems. Resistance to change and ritualistic behavior are often characteristics found among children with autism spectrum disorders. Problems with feeding, or other activities of daily living such as toileting, may be an extension of these issues rather than separate types of problems. Children with autism spectrum disorders are sometimes described as being hypersensitive to taste, texture, and smell and some suggest that this hypersensitivity underlies their feeding problems. Even though I believe this is true to some extent, this does not explain how the feeding problem either developed or is maintained. Some feeding problems, namely the extreme food selectivity, found among children with autism has been attributed to a neurochemical etiology. It has been theorized that children with autism eat more starches than other foods because of the effects of the gluten. While this is an interesting theory, there is currently no evidence to support it. Both children with and without autism eat more starches than other types of foods, which I attribute more to their availability and accessibility than anything else. In our feeding clinic, a large percentage of the children seen have chronic medical issues such as gastroesophageal reflux or pulmonary disease. Although we tend to attribute these children's feeding problems, at least in part, to these medical issues, we only have correlational, not causal evidence for making this assertion. Given the available information, it is not yet possible to determine the etiology of the feeding problems found among children with autism spectrum disorders. As more longitudinal studies of children with autism are conducted, hopefully we will learn more about the development and course of the feeding problems experienced by some of these children. (Part II to come in the April issue!)

Constipation...the scoop on poop.

by Krisi Brackett MS SLP/CCC, UNC Hospitals, Chapel Hill, NC

Years ago, my mentors taught me to always ask an important question when evaluating a child with a feeding problem - how often does the child poop? Why is a speech therapist asking about bowel movements? I realized quickly that when working in the field of feeding disorders one needs to familiarize themselves with the entire digestive tract- from the mouth all the way to the other end. If you want to get more food in then you must make sure it's coming out and I mean coming out well.

What is constipation? According to an article illustrating just this topic published by the International foundation for functional GI disorders (Thompson, G.T. What is constipation anyway? *Participate*, vol 11, No3, Fall 2002) "notions of bowel habit lie in the eye of the beholder". While there is no standard definition, three (or four) criteria should be considered:

1. frequency of defecation
2. consistency or form of the stool
3. effort required to expel the stool (and accompanying discomfort and distension)
4. And for feeding specialists – the impact on the mouth of the current stooling regimen. Is it enough.

This article also offers the Rome II Criteria for Constipation: 1. straining more than ¼ of defecation's 2. lumpy or hard stools more than ¼ of defecation's 3. sensation of incomplete evacuations more than ¼ of defecation's 4. sensation of anorectal obstruction/blockage more than ¼ of defecation's 5. manual maneuvers to facilitate more than ¼ of defecation's 6. less than 3 defecation's per week

Constipation can be caused by diet, medications, or psychological disorders. The majority of constipated children show no abnormalities, in which case a diagnosis of chronic functional constipation is made.

Symptoms of constipation include

- no bowel movement for several days or daily bowel movements that are hard and dry
- cramping abdominal pain, nausea/ vomiting

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- weight loss, liquid or solid, clay-like stool in the child's underwear--a sign that stool is backed up in the rectum
- very large stools, difficulty stooling

In many children with chronic constipation, the large intestine gets stretched out of shape which is called megacolon, so that they pass extremely large and painful bowel movements. Because of this, some children will refuse to pass bowel movements or even go to the bathroom, which can lead to conflicts and behavioral difficulties. Passing very large or hard bowel movements may open up small tears or rips at the anal opening called anal fissures, which can be painful and are often associated with some bleeding.

Many children who suffer from chronic constipation will have changes in their appetite. It has been clearly shown that the stomach empties more slowly when someone becomes constipated. Parents often notice that their child gets full very easily or that their child nibbles or grazes throughout the day rather than eating three meals. Some parents notice that their child's appetite improves dramatically for several days after they pass a large bowel movement, but then it slowly declines again. Children with constipation may complain of frequent abdominal pain or cramps and they are often quite irritable and/or disagreeable. They may have recurrent attacks of nausea and vomiting.

The bladder sits right in front of the rectum so if the rectum becomes enlarged and is chronically filled with stool, there may be less room for the bladder to expand with urine. This may cause a number of urinary problems such as small bladder capacities and frequent, recurrent bladder infections, bedwetting, urinary dribbling, or difficulty starting their stream.

In older children, long-standing constipation can be associated with leakage or smearing of stool in the underwear. As the large intestine gets stretched larger and larger, liquid stool from the small intestine begins to "leak" around more formed stool in the large intestine. In the beginning, the leakage is usually very small and most parents just assume their child isn't wiping his or herself very well. As the large intestine stretches further, the amount of leakage increases so that eventually children begin having "accidents" - they pass whole bowel movements in their underwear. This is called encopresis.

Treatment

There are many different ways to treat childhood constipation, but in the end, most treatments revolve around three basic principals:

1. Empty the large intestine (clean out the bowel)
2. Once the large intestine has been emptied, establish regular bowel movements
(use laxatives to keep stool soft so that the bowel can shrink back down and become more efficient)
3. Eliminate the pain associated with passing bowel movements

* This will help appetite improve and also facilitate improved dietary intake of fiber and more fluid.

There are many different ways of accomplishing the three principals above. Early on, constipation can often be treated by changing a child's diet by increasing fluids, fruit and fiber. Once the constipation becomes chronic, laxatives are usually needed to clean out the bowel and to re-establish regular bowel movements and eliminate the pain associated with passing bowel movements. Next, with improved stooling appetite should improve and lead to improved intake of foods to help stooling.

Can diet accomplish the same thing as these laxatives?

In high enough doses, many foods are effective laxatives however it is often difficult to eat or drink enough of these foods to be effective long-term treatments. In large amounts, most fruits and juices can be very effective laxatives. Much like fiber laxatives, prunes contain complex sugars that are not digested or absorbed in the intestine. As a result, the sugars remain in the intestine and keep water with them. The end result is that there is much more water in the stool, keeping it very soft, and causing it to move through the intestine more quickly. As with fiber laxatives, high doses of prunes often produce bloating and gas.

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Constipation...the scoop on poop.

by Krisi Brackett MS SLP/CCC, UNC Hospitals, Chapel Hill, NC

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Treating Constipation with Dietary Modifications

The ultimate goal in treating constipation is for your child to have a soft bowel movement each day. One of the main ways to prevent and treat constipation is by modifying your child's diet.

1. Decreasing foods that are constipating: including cow's milk, bananas, yogurt, cheese, cooked carrots and other foods that are low in fiber.

2. Increasing the amount of fiber in your child's diet. How much fiber does your child need? The usual recommendation is that children should have 5-6 grams of fiber plus their age in years each day. So a 4-year-old should have 9-10 grams of fiber each day. High fiber foods include fruits and vegetables, especially if they are raw and unpeeled, beans, especially baked, kidney, navy, pinto and lima beans, sweet potatoes, peas, turnip greens and raw tomatoes. Other foods that are good for children with constipation include vegetable soups (lots of fiber and added fluid), and popcorn. Extra bran can also be helpful, including bran cereals, bran muffins, shredded wheat, graham crackers, and whole wheat bread.

3. Increase the amount of fluids that your child is drinking. He should have a minimum of 2-3 glasses of water or fruit juices each day. Apple juice, pear and prune juice, or other juices high in sorbitol, are good choices.

Are laxatives safe?

Most of the concerns about using laxatives in children are unfounded. Some common misconceptions include the risk that children may become "dependent" on laxatives if they use them too long. Since nearly all-available laxatives work by keeping large amounts of water in the stool, they can be used for very prolonged periods of time without significant risk. There is no evidence that any of the laxatives described above can result in dependency with chronic usage. Another misconception is that Laxatives lose their effectiveness if they are used for prolonged periods. No studies have ever convincingly demonstrated that any of the laxatives described above lose their effectiveness over time. A third misconception is that children who use laxatives have an increased risk of developing colon cancer. While several studies have suggested that adults with untreated constipation may be at increased risk for developing colon cancer, there is no evidence to suggest that laxatives increase this risk.

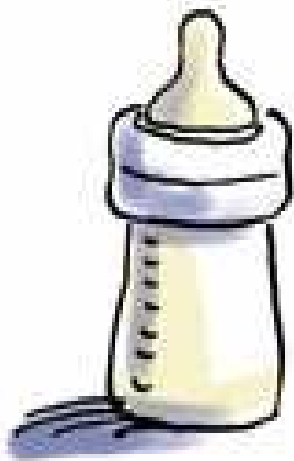
How long do we need to continue treatment?

The length of treatment varies from child to child, but in general, we must treat younger children for longer periods of time than older children. Younger children need to be treated long enough so that they lose the association between passing bowel movements and pain. A mistake parents often make in treating their children's constipation is stopping their medication too soon, once they begin having soft stools.

This article was reviewed for general content by Dr. Katherine Freeman, UNC Hospitals, Peds GI
<http://www.aboutkidsgi.org/> www.niddk.nih.gov/health/digest/summary/conchild/
<http://www.med.virginia.edu/cmc/tutorials/constipation/causecon.htm>
<http://www.comeunity.com/disability/constipation-links.html>
<http://pediatrics.about.com/library/weekly/aa070501a.htm>
<http://www.fruiteze.com/index-main.html> (This site features a very good chart of laxatives)

Q & A: I am an O.T. that works in an NICU which has a limited variety of nipples for our premies with special needs. So, when an infant has reflux and requires rice cereal added to their formula, the nurses enlarge a red or yellow nipple with a needle. With some infants it is difficult to get the hole to the precise size needed for them. Are there some nipples manufactured just for this purpose? Thanks for all your help!!!
Cyndy Murphy, OTR

There has yet to be invented a nipple that is ideally suited for preterm infants. Flow rate is critical for swallowing safety, and the majority of the nipples used with premies provide a fast flow rate that research is showing actually inhibits breathing and results in smaller intake. Please refer to my recent article in the Feeding Newsletter about Flow rate and Preterm Infants (January 2003) When thickened feedings are required based on a swallow study, or due to physician orders related to GER, careful consideration must be given to the nipple used. When rice cereal is added to the formula for GER, one may need to consider a different delivery system to allow the thickened mixture to come out of the nipple. However, depending on how much cereal is added, the mixture may actually easily pass through a standard nipple (Ross yellow). I find that the amount of cereal the neonatologists prescribe for GER is often minimal, and typically the mixture can still pass through a standard nipple. Given that many premies often have respiratory issues, it is critical to help the nurses make careful decisions about flow rate and making compensations



with rice-thickened feedings. We need to be cautious about enlarging nipple holes, as it is easy for formula in which the rice has settled to actually be "thin" and coming through an enlarged nipple hole! Whenever the feeding is thickened with rice, I suggest that the nurses periodically shake the bottle to redistribute rice. Another option instead of enlarging the nipple hole is to put a short slit in the standard nipple end (through the hole)--that at least gives some control (more than a large hole). In our Level III Unit we do not use premie nipples, because the flow rate is counterproductive to safe swallowing and intake. With rice-thickened feedings for GER, red nipples are "fast flowing" enough as they are (without a larger hole!) to allow rice-thickened feedings for GER to come through the nipple hole. You may want to do a small study with Radiology to get objective data with flow rate variances, using the typical thickening for GER your neos are using. That way, you can enhance swallowing safety for these at-risk infants.

Catherine S. Shaker, MS/CCC, Pediatric Speech-Language Pathologist
St. Joseph Regional Medical Center Level III NICU, Milwaukee, WI 53210
Additional comment:

First, I should say that I'm not a fan of using rice for reflux but it is done where I work as well. We have come up with a few ideas.

1. You can try grinding up the rice dry in a blender to a flour consistency. It will be denser but smoother and less likely to clog the nipple.
2. One year, mead johnson gave us a bag of a 1000 pre-cross cut nipples to use. They weren't sold in stores only given to hospitals and the nipples were firmer, less likely to collapse, but pre-cross cut. They worked well for some infants. Some juice nipples you can buy in the grocery store are also pre-cross cut. (Even regular nipples are not laser cut therefore not a standard flow rate) and Catherine makes a good point about watching flow rate carefully.
3. Avent has a nipple that is soft and allows for slightly thickened liquid to flow out of as do some of the special nipples for infants with cleft palates (the Haberman feeder and the pigeon nipple).
4. And we do resort to slitting the nipples when we have too.

- Krisi Brackett

Question: Do formulas with DHA cause gas, constipation, or discomfort? We have noticed frequent parent complaints about this and wanted to do an informal questionnaire about this topic. Please email comments: Kbrackett@unch.unc.edu or through the website at www.feedingnews.com Thanks!

Case by Case...: Determining Appropriate Referrals

by Kyra Hill MS SLP/CCC, Encouragement Feeding Center, Kluge, Charlottesville, VA

Background: LF was a 4 yo F admitted for intensive feeding therapy as a day patient secondary to continued g-tube dependence. PMH was significant for trisomy-21, mild, spastic L hemiplegia, isolated seizure-like event, congenital heart disease, high hyperopia and esotropia, s/p PE tube placement, tonsillectomy, and adenoidectomy. Pyloroplasty was performed secondary to delayed gastric emptying. She demonstrated significant cognitive and motor delays. Past meds included Ranitidine, Metaclopramide, Zyrtec, and antibiotics prn.

Feeding History: LF presented with neonatal feeding difficulties requiring NG-tube feeds followed by g-tube placement at 4 months. She received Enfamil exclusively during infancy and was transitioned to Pediasure at 12 months. LF continued to have frequent emesis and constipation. She was switched to a water-based blended diet via g-tube at 2 years with significantly improved GI status but continued oral refusal. Whole milk was added to blended diet at 2.5 years with resultant weight gain, but LF experienced renewed illness c/b GI and upper airway symptoms. On admit she received 4-230cc boluses blended diet plus water flushes daily. **Orofunctional Status:** Assessment of oral structure and function was limited secondary to severe oral hypersensitivity. LF presented with peg-shaped teeth, spacing abnormality, and mild malocclusion. Lingual and labial strength and mobility were judged adequate for safe and efficient intake of puree during assessment using dry spoon and play activities.

Initial impression was high-calorie/volume tube feeds and extensive, unresolved GI difficulties with related upper airway pathology. Gastrointestinal presentations included suspected delayed gastric emptying and intestinal transit as evidenced by excessive mucous and gas, abdominal distention with retention of bolus feed up to 6 hours, and absent bowel movements for 72 hours. Reflux suspected during sleep secondary to moderate restlessness, coughing, and suckling behaviors. Feeding behaviors were c/b food refusal, gagging, emesis, and sublingual saliva pooling resulting in spitting.

Primary consideration was to reduce gagging, emesis, and oral aversion by treating reflux and constipation. Attending physician prescribed Miralax 10ml, Milk of Magnesia 4ml prn, Omeprazole 6ml, and Cyproheptadine 1ml. Feeding therapy was initiated 4x daily. LF's tube feed schedule was adjusted to 6 bolus feeds of 100-200cc blended diet and 50-100cc water. Administration of late pm bolus was moved earlier to evening secondary to s/s of reflux during sleep. Dairy was replaced with soy secondary to history of formula intolerance. A dry spoon was used to begin transition to oral feeds. LF began easily accepting spoon with toleration of spoon bowl to medial tongue. She advanced to acceptance of a spoon dipped in water/ puree and demonstrated upper lip movement to clear the spoon and timely swallow.

Constipation became nonresponsive to meds and LF began refusing spoon and spitting again. Enema therapy was ordered by M.D. with minimal results. No bowel impaction was manually detected by M.D. LF did not appear to be actually constipated; however, abdominal distention was pervasive and tube feeds became difficult to tolerate. The improvement that LF had demonstrated abruptly ended. The therapist recommended that LF return for a gastroenterology evaluation secondary to signs of delayed gastric emptying. A pediatric gastroenterology consult revealed the presence of an acquired duodenal web and mild esophagitis. LF began accepting spoonfuls of puree within 1-2 weeks of the excision and continued to progress with speech therapy at home.

Conclusions: LF had received ongoing therapy during the past 3 years with minimal to no results initiating PO feeds. This lack of progress was generally attributed to LF's reduced cognitive status and her food refusal was often labeled a behavioral disorder. However, overt physiologic discomfort was her largest barrier to feeding. This case study is an example of how underlying pathology can severely limit a child's willingness to feed as well as the importance of making appropriate referrals to address complex clinical presentations.

What is a duodenal web?

A duodenal web is an intraluminal membrane containing a central perforation that permits passage of only small amounts of food or liquid. Symptoms typically include vomiting and abdominal distention. Surgical excision is indicated. Duodenal atresia is similar to webbing except that it causes complete obstruction. This structural abnormality is highly associated with Trisomy-21.

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Special for Feeding Therapists and Professionals!

Questions, comments, submissions, and suggestions are all welcome. Please be vocal, the hope is that this forum will be educational and will help to connect us as professionals working together.



On the Research Front:

Redford-Badwal, D.A., Mabry, K., & Frassinelli, J.D. Impact of cleft lip and/or palate on nutritional health and oral motor development. *Dental Clinics of North America* 2003;47: 305-317.

This article discusses oral-motor and feeding issues related to the child with a cleft. Etiology, oral motor development and nutritional needs are illustrated. Feeding options are presented as well as various bottles and techniques.

Kelley M.E., Piazza, C.C., & Fisher W.W. Acquisition of cup drinking using previously refused foods as positive and negative reinforcement. *Journal of Applied Behavior Analysis* 2003; 36: 89-93.

The authors used previously refused foods as positive and negative reinforcement in the acquisition of cup drinking. Cup drinking increased with positive and negative reinforcement indicating that treatment of food refusal can establish some foods as appetitive stimuli whereas other remain aversive.

Drewett, RF., Kasese-Hara, M., & Wright, C. Feeding Behavior in young children who fail to thrive. *Appetite* 2002, 40: 55-60.

The food intake and feeding behavior of 1 year old children with FTT and matched controls was examined using a behavioral coding scheme. Both food and fluid intake were lower in the children who failed to thrive. The mothers of the children who failed to thrive attempted to feed their children the same amount or more than the controls. They refused or rejected food more often and fed themselves less often than the controls.

This material is provided for informational and educational purposes only; it does not contain specific medical advice. If you have specific health questions or problems, consult a health care professional for personal medical advice.