

ARTICLE FOR THE COLORADO BREASTFEEDING UPDATE

CONSEQUENCES OF GASTROESOPHAGEAL REFLUX AND BREASTFEEDING

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Doctor Toomey is a Pediatric Psychologist and acting Director of the HealthOne/Rose Pediatric Feeding Center. She has worked with children with feeding difficulties for over ten years and has been especially interested in the impact of Gastroesophageal Reflux on feeding for the past five years.

Within the realm of feeding difficulties, the behavioral consequences of Gastroesophageal Reflux (GER) comprise one of the most problematic sets of feeding issues encountered by families and professionals alike. In addition to the unique set of challenges GER creates for feeding, it also causes problems with handling and positioning a baby, sleeping patterns, motor development, and parenting sanity. The behavioral problems and challenges of GER range from deciding what, when and how to feed the child, to identifying when and how to position an infant for sleeping, to how to best encourage motor development in an infant who may vomit if you put them down to play.

WHAT IS GER?

GER occurs when one's stomach contents flow up past the lower esophageal sphincter (LES) into the esophagus (LES = the valve which controls passage into and from the stomach). A visual way to conceptualize GER is to use an analogy of a hot water bottle with a loose cap. If you fill this "bottle" (the stomach) and lay it down flat, the contents will flow out past the cap. If the bottle is vertical and you squeeze it, fluid will also spill over the top. How much fluid is lost depends on how full the "bottle" is, the angle the "bottle" is positioned, how much compression is occurring, and how loose the "cap" is.

WHY IS GER A PROBLEM?

Typically, both children and adults reflux approximately five times after each meal. However, most of us do not notice or are not bothered by this refluxing. In fact, most stomach contents are cleared from the esophagus in two dry swallows¹. Problems with GER arise when the frequency of refluxing is great enough to cause esophageal burning; if the stomach contents are acidic enough to irritate the throat; when the contents do not clear the esophagus in under 3 minutes, thereby causing irritation; if vomiting of the stomach contents is extensive enough to create a high calorie loss; if the contents are refluxed up into the back of the throat and then aspirated into the lungs; or if the contents are refluxed up through the nose. Direct secondary physical consequences from the above can be: esophagitis; ulcerations; esophageal scarring or stricture; poor growth; respiratory infections and/or possible asthma²; possible ear infections from refluxing

through the nose; and increased appearing motor tone from arching that is a part of the Sandifer's Reflex trying to tighten down the LES.

From a behavior standpoint, the major issue created by GER is that instead of learning eating is pleasurable and satisfying, the child with GER learns that eating is uncomfortable; either from the experience of vomiting and/or from the burning sensation that can occur when one refluxes. Also, if the child has developed esophageal irritation, he/she will learn that swallowing is uncomfortable as well. Thirdly, a child may even become averse to being simply positioned for breastfeeding because the position becomes a signal of impending discomfort. Being lain in a primarily horizontal and curved position for breast feeding is in-and-of itself also likely to increase GER (recall the full water bottle analogy). A fourth issue is that over time, children with GER demonstrate a behavioral feeding pattern of aggressively initiating suckling, then pulling off and crying when they experience discomfort. Because of this discomfort, they learn to tolerate eating just enough to take the edge off their hunger, and rarely eat to satiation. Eating tiny amounts frequently (grazing), along with not eating to satiation (which is by itself aversive³), both contribute to dampening appetite recognition. Fifth, these children are frequently irritable intermittently throughout the day, they don't sleep well, and they are often hypersensitive to stimulation because of discomfort and hunger; obviously, not an easy child to feed.

POSSIBLE CAUSES OF GER?

In our work at the HealthOne Rose Pediatric Feeding Center, we have seen 45 children with GER and feeding difficulties over the past 3 years. We have found GER to be primarily associated with two major issues; low muscle tone and/or food sensitivities (53% low tone only; 8% food sensitivities only; 27% with both). When there is low tone present in the body, there is logically a high probability of low tone in the LES, also a muscle of the body, resulting in insufficient closure of the control valve to the stomach. With regards to food sensitivities, it appears that the GER is more similar to vomiting a substance not well tolerated by the body. The other 2% of the children seen with GER have congenital and/or genetic problems, including those children with a strong family history of gastrointestinal problems..

IMPACT ON BREASTFEEDING

The first issue to examine here has to do with what to feed a child with GER. In reviewing our work, we have found that there are more formula fed children diagnosed with GER than breastfed children (73% versus 27%). We believe that this is likely related to the food sensitivity issue noted above, and the fact that breast milk is generally better tolerated by infants than formula⁴. The breastfed GER babies tended instead to have low tone issues more often than food sensitivities (58% versus 17%). We therefore recommend implementation of the general behavioral strategies below and/or medications rather than the use of rice cereal or formula because of

the increased oral-motor effort to suck rice cereal through a nipple, and the risk of creating more sensitivity issues by transitioning babies to formula.

A second issue with GER and breastfeeding is **how to feed** the baby. Breastfeeding positions with a child with GER can be quite problematic, especially since many of these children have tone issues and/or oral-motor difficulties which make it difficult for the baby to feed smoothly through higher milk flow times. We recommend feeding the child in a position that is as upright as possible, so that the child is almost sitting in the mother's lap. However, this position also requires that the child be raised on a pillow to the breast level so that the mother is not leaning forward during the feeding, or that the mother feed in a chair that can be reclined back somewhat so milk flow is slower.

A third question to consider with GER and breastfeeding is **when to feed** the baby. The goal of feeding a GER baby is to keep a medium amount of food in their stomachs as much of the time as possible. GER babies who shut down because of discomfort or appetite suppression and go hours without eating, often times are overly disorganized when they do try to eat because of hunger. GER babies who "binge" eat because they've gone long enough without eating to let their throats heal and now feel okay to eat, will usually fill their stomachs to the rim and start their refluxing excessively all over again. Over time a behavioral feeding pattern of a few large feedings, a few fussy feedings and then a few awful feedings emerges. This is problematic because over 1-2 months, the amount consumed during each of type of feeding decreases until even good feedings are only a few ounces. The other problem this "GER feeding pattern" creates for breastfeeding mothers is a supply and demand issue when the baby is feeding inconsistently. Therefore, we recommend that mothers try to control when and how much the GER baby eats. This is not an easy task, but it can be achieved through a combination of scheduling when the baby is put to breast, controlling how long the baby is on the breast, and using before and after weights if possible. As you can see, with a committed mother, it is not necessary to stop breastfeeding because of GER; it is just more "interesting".

GENERAL BEHAVIORAL RECOMMENDATIONS

General

1. decrease distraction; environment is quiet and calm.
2. do not force feed: Goal for feeding = experience is to be enjoyable for infant and parent vs. volume.
3. create a familiar routine to feedings; eg. may use a song, may have a special pillow, may show baby the bottle first and say in a high voice "time to eat now", feed in the same place when possible etc., (Every feeder uses the same routine!).
4. a favorite transitional object can be helpful during feedings, eg. Blanket, diaper, toy).

5. some infants benefit from rocked first so that they are alittle sleepy before eating. However, we do not want these children to be fully asleep when eating (risk of aspiration), nor do we want them to **ONLY** eat when partially asleep. Infants who are only fed when asleep lose the ability to eat when they are awake.
6. very young infants may do well with being partially swaddled.

Positional

1. elevate head of bed and changing table by raising the **FEET** of furniture, **NOT** the mattress.
2. keep child in upright for at least 20 minutes after a feeding, with **NO** stomach compression and **NO** swinging or bouncing.
3. feed infant in a semi-upright position, with elongated and supported trunk, No compression on the left side of the body especially.
4. avoid stomach compression at all times in handling. Use a hand under the child's left armpit when holding and shifting positions to assure that the left side of the body remains elongated and not compressed.
5. use "Snugglies" or bouncy seats as alternatives, making sure trunk is elongated. Can make a small, elongated roll out of a washcloth to put under the child's left armpit to assure elongation of the left side of the body without compression. An infant or car seat should be used only when necessary, and then should be used with the roll under the left armpit.

Schedule

1. schedule feed baby beginning every 2 hours, gradually extending as baby gets older to every 3 ½ to 4 hours (depending on volume child takes per feed), until the child begins to take solids consistently. Goal is to prevent baby from not eating for long periods of time as a way to avoid discomfort, which then means baby is voracious when he/she does eat and they are more likely to be disorganized and more likely to binge.
 - Also want to see enough time between feedings for an appetite to be present (ie. **don't allow grazing every hour**), and for stomach to empty partially.
2. if baby is refusing to eat, give he/she break of ~ 10 minutes to calm and play before re-introducing. Take only 2 breaks before discontinuing feeding. Force feeding babies who are not ready and/or able to eat only leads to a learned aversion. Give the child a rest after 2 breaks of a minimum of 1 ½ hours to 2 hours before trying another feeding. (Can offer an older child some solids if they are refusing the breast still after 2 breaks).
3. if behavioral feeding pattern is emerging, do not allow child to "binge" eat. This may mean identifying a specific volume and/or time that the child

is not allowed to go beyond and stopping a feeding. - eg. a child who takes 3 ounces on the average, may range from 1 to 5 ounces as part of their behavioral cycle. This child would be held to no more than 4 ounces maximum at any one feeding to avoid the "binge" setting off the reflux. When this child is consistently taking 3 to 3 ½ ounces at each feeding, the maximum volume can be raised to 4 - 4 ½ ounces and so on.

REFERENCES

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