

Media Release

Tongue tie can cause breastfeeding difficulties: Overlooked and ignored, yet easily cured

Up to 10% of babies are born with tongue-tie (ankyloglossia). Untreated, the condition may lead to unnecessary and prolonged discomfort and pain for the mother, weight loss for the baby, and ultimately premature cessation of breastfeeding. Food consumption and speech development later in life can also be affected. Whereas the symptoms are easily recognized, tongue-tie as a cause is often overlooked by medical professionals as it has been believed for many years that tongue tie does not cause feeding problems. For the first time, ultrasound - a non-invasive diagnostic tool - has been used to identify the mechanism behind breastfeeding difficulties associated with tongue-tie. The research shows that tongue movement can be readily restored and problems resolved through a simple procedure.

Not being able to feed a newborn baby properly and not understanding why it isn't working is every parent's nightmare. A nightmare which in many cases could be avoided with early diagnosis and treatment. A greater awareness of the implications of tongue tie and the link between tongue-tie and breastfeeding difficulties by parents and professionals would also go some way to alleviate the problems. Unfortunately tongue tie is often not obvious to the untrained eye meaning that a mother may experience days or even weeks of discomfort, pain and of course worry and stress. Signs include painful, red and/or even cracked nipples; babies may latch on poorly to the breast and following frequent failed attempts will get very frustrated with inconsolable crying. With not enough milk taken during a feed, the baby will want to drink often displaying the same distressful pattern of behavior every time.

Tongue-tie is condition which arises when the tongue's movement is restricted as a result of a short, inelastic or incorrectly attached frenulum, the piece of skin which connects the tongue to the floor of the mouth. Diagnosis can be difficult and requires a thorough investigation of the tongue as well as taking into account the feeding difficulties and is therefore sometimes missed. During the period of uncertainty and ambiguity, the baby may lose weight, the mother may feel the need to top up with formula, and so the downward spiral continues until breastfeeding is stopped, a seemingly appropriate solution to the problem.

The procedure to alleviate ankyloglossia is a frenulotomy i.e. the release of the frenulum. The procedure itself has been shown to be safe and simple. The decision to treat, and when however, remains controversial despite the common incidence up to 10.7% reported in the literature. Reports of feeding difficulties in these infants are increasing with published figures estimating that between 25 and 44% of infants are affected.

The controversy surrounds the poorly understood mechanism behind the problems associated with the tongue tie, resulting in the lack of a universal definition and difficulties in diagnosis.

Dr Donna Geddes, Associate Professor from the University of Western Australia is a specialist in ultrasound technology, using it to learn more about the anatomy of the lactating breast and infant sucking dynamics in particular. She has discovered that creating a vacuum is essential for an infant to successfully remove milk during breastfeeding. Now Dr Donna Geddes has used this non-invasive tool again to shed light upon the effects of tongue-tie from a different perspective. Donna Geddes:

“Assessment of the severity and impact of ankyloglossia is based on visual and sometimes physical examination of the infant oral cavity. No objective assessments of sucking ability have been made during breastfeeding. Using ultrasound, we were able to investigate the sucking dynamics of tongue-tie infants feeding before and after frenulotomy. Our studies clearly show that tongue tie is having a negative influence on tongue movement, either by pinching the tip of the nipple, or compressing its base, and therefore may cause problems with breastfeeding. Restricted tongue movement can be restored with the release of the frenulum, and this will result in relief for both mother and baby.”

Her research, which will be presented during Medela’s 8th International Breastfeeding and Lactation Symposium in Copenhagen (12-13 April 2013), provides further evidence that ankyloglossia and its treatment should always be considered when assessing an infant for breastfeeding difficulties, suggesting a shift in common professional practice.

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About Medela

Medela provides technologically advanced, superior-quality breastpumps and breastfeeding accessories to nursing mothers around the world. Medela develops products based on research by the world's leading lactation experts and has established an extensive line of products to meet the diverse needs of nursing mothers. These products include hospital-grade, double and single electric and manual breast pumps and breastfeeding accessories.

The Medela family company, headquartered in the Canton of Zug, Switzerland, was founded by Olle Larsson in 1961. Medela concentrates on two business units, Breastfeeding and Healthcare, specialising in the application of vacuum technology to medical suction devices. Medela has 16 subsidiaries in Europe, North America and Asia, distributes its products in over 90 countries, and employs 1,300 staff worldwide. www.medela.com

Fact Sheet, Background information

Research based background information

- Ankyloglossia, or tongue-tie, is characterized by a restricted movement of the tongue resulting from a lingual frenulum that is either short, inelastic, or attached incorrectly. Tongue-tie can cause breastfeeding difficulties such as difficulty latching to the breast, maternal pain, and inefficient milk transfer leading to poor infant growth and a decline in maternal milk supply.
- While the procedure to alleviate tongue-tie, a frenulotomy¹, has been shown to be safe, simple and successful in alleviating these issues, the decision to treat, and when, remains controversial as the mechanism behind the problems associated with tongue tie is poorly understood, resulting in the lack of a universal definition and difficulties in diagnosis.

The dynamics of sucking - background

- Using the non-invasive tool of ultrasound Dr Donna Geddes (nee Ramsey) was first able to reinvestigate the anatomy of the lactating breast. Milk ducts were seen as small, and branched very quickly under the areola and into the breast tissue and there was no evidence of lactiferous sinuses/milk storage areas (as this has been described since 1840). This indicated that the ductal system was primarily responsible for transporting milk from the alveoli to the infant’s mouth rather than storing it.²
- This had subsequent implications for the dynamics of healthy infant sucking. It was previously thought that compression of these milk storage areas in a peristaltic motion was responsible for milk transferring to the infant’s mouth. Dr Geddes was able to demonstrate that milk flow was associated with a downward movement of the tongue and minimal distortion of the nipple. Such that when nipple diameter increases and the infant draws a vacuum that milk flowed, and when the nipple was compressed, milk flow ceased.³

Tongue tie changes the dynamics

- To help understand tongue-tie better and the issues surrounding it, Dr Donna Geddes investigated the sucking dynamics of tongue-tie infants feeding before and after frenulotomy using ultrasound.
- Once the healthy term infant sucking dynamics had been defined, Dr Geddes could now move on to uncover whether tongue-tie was associated with any measureable alteration in sucking dynamics. During this investigation Dr Geddes measured altered tongue movements that resulted in distortion of the nipple, and was able to identify two distinct groups of infants presenting with tongue-tie based on their sucking dynamics.

¹ A **frenectomy** (also known as a **frenulectomy**, **frenulotomy** or **frenotomy**) is the release of a **frenulum**, a small fold of tissue that prevents an organ in the body from moving too far.

² Ramsay DT, Kent JC, Hartmann RA, Hartmann PE. Anatomy of the lactating human breast redefined with ultrasound imaging. J Anat 2005 Jun;206(6):525-34, <http://www.ncbi.nlm.nih.gov/pubmed/15960763>

³ Geddes DT, Kent J, Mitoulas L, Hartmann PE. Tongue movement and intra-oral vacuum in breastfeeding infants. Early Hum Dev 2008;84:471-7. <http://www.ncbi.nlm.nih.gov/pubmed/18262736>

- In the first group, the infant sucking action resulted in compression or ‘pinching’ of the tip of the nipple, this explains an infant presenting clinically with tongue tie that is unable to maintain a seal and latch at the breast. In the second group, the infants compressed the base of the nipple; this explains an infant presenting clinically with tongue-tie who grasps the breast strongly to suck.
- Frenulotomy improved the infant’s tongue movement as imaged by ultrasound, with both groups demonstrating a significant decrease in nipple compression and nipple distortion. The infants also had improved milk intake, improved attachment (assessed by LATCH), and mothers had a reduced pain score.

Symptoms for the tongue-tie

- The nipple is red on the tip or even cracked after some time. The mother always feels pain exactly at the tip of the nipple during breastfeeding
- The baby starts with drinking from the breast and begins to cry soon after
- The child wants to drink every hour but shows the same behaviour every time because it does not get enough milk
- Insufficient weight gain of the child
- The milk production of the mother is not developing properly or even decreasing

Associate Professor Donna Geddes:

Donna is an Associate Professor working with the Hartmann Human Lactation Research Group in the University of Western Australia. She is involved in both the research and management of the group. Donna has a medical imaging background with an emphasis in ultrasound imaging. She has integrated this modality into many of the group’s studies providing a ‘window’ to different physiological processes during lactation. Donna’s work has attracted much international attention. She has received the Early Career Research award from ISRHML (2008) and the Certificate of Distinction for Innovative Research from the Raine Medical Research Foundation, Perth (2008) in recognition of her contribution to scientific research.

Her research into ankyloglossia has been published in *Pediatrics*, the Official Journal of the American Academy of Pediatrics, *Pediatrics* Vol. 122 No. 1 July 1, 2008 / pp. e188 -e194 / (doi: 10.1542/peds.2007-2553) - Frenulotomy for Breastfeeding Infants With Ankyloglossia: Effect on Milk Removal and Sucking Mechanism as Imaged by Ultrasound
<http://www.pediatricsdigest.mobi/content/122/1/e188.abstract?sid=3996b3ff-fdb9-4987-a43c-3cca84cf098f>

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