



## Ankyloglossia

**Date of Search: 17/06/2016**

**Sources Searched: Medline, Embase, Cinahl**

### **Search History:**

1. CINAHL; \*ANKYLOGLOSSIA/; 88 results.
2. CINAHL; "Tongue-tie".ti; 65 results.
3. CINAHL; 1 OR 2; 110 results.
4. EMBASE; \*ANKYLOGLOSSIA/; 164 results.
5. EMBASE; "Tongue-tie".ti; 123 results.
6. EMBASE; ANKYLOGLOSSIA.ti; 184 results.
7. EMBASE; 4 OR 5 OR 6; 323 results.
8. EMBASE; 7 [Limit to: English Language]; 284 results.
9. Medline; (ANKYLOGLOSSIA OR "tongue tie").ti; 270 results.
10. Medline; 9 [Limit to: (Language English)]; 236 results.

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**Title:** Ankyloglossia and the Breastfeeding Infant: Assessment and Intervention.

**Citation:** Advances in neonatal care : official journal of the National Association of Neonatal Nurses, Apr 2016, vol. 16, no. 2, p. 108-113, 1536-0911 (April 2016)

**Author(s):** Manipon, Christine

**Abstract:** Our current culture defines breastfeeding and the use of human breast milk as the preferred criterion standard for infant nutrition. Medical and health professionals have a responsibility to support breastfeeding in the mother-infant dyad. This includes the recognition of anatomical barriers to breastfeeding such as a tongue-tie, ankyloglossia. The purpose of this article is to enrich and expand the clinical knowledge of health professionals about the physical assessment of ankyloglossia and its impact on breastfeeding. Techniques for assessing anterior and posterior ankyloglossia and interventions across the spectrum are discussed. We also explore maternal emotional experiences of breastfeeding an infant with ankyloglossia. A systematic literature search from MEDLINE, CINAHL, and Cochrane databases was performed. The search results consisted of qualitative and quantitative studies performed involving infants with anykloglossia and breastfeeding experiences. Data and findings from the search results were analyzed and reviewed. Ankyloglossia, commonly referred to as tongue-tied, can result in weight loss, painful breastfeeding, and a cessation of breastfeeding prematurely. Depending on severity, interventions to alleviate breastfeeding difficulties can range from a lactation consultation to surgical intervention. The options for treatment and intervention must be discussed thoroughly with caregivers. Thorough assessment of the breastfeeding dyad is essential to discovering ankyloglossia and its role in breastfeeding difficulties. Intervening appropriately can prevent negative

outcomes associated with ankyloglossia and breastfeeding. Future studies should be focused on developing universal tools for grading ankyloglossia and the effects of ankyloglossia on speech development. There is also a gap in the knowledge regarding ankyloglossia in the preterm infant and its impact on developing breast and bottle-feeding technique in the neonatal intensive care unit.

**Source:** Medline

**Full Text:**

Available from *Ovid* in [Advances in Neonatal Care](#)

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**Title:** Tongue-tie division. Is it worth it? A retrospective cohort study.

**Citation:** British Journal of Midwifery, 2016, vol./is. 24/5(317-321), 09694900

**Author(s):** Braccio, Serena, Chadderton, Zoe, Sherridan, Angela, Upadhyaya, Manasvi

**Language:** English

**Publication Type:** Academic Journal

**Source:** CINAHL

**Full Text:**

Available from *British Journal of Midwifery* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

Available from *EBSCOhost* in [British Journal of Midwifery](#)

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**Title:** Tongue-tie division to treat breastfeeding difficulties: our experience.

**Citation:** The Journal of laryngology and otology, Oct 2015, vol. 129, no. 10, p. 986-989, 1748-5460 (October 2015)

**Author(s):** Sharma, S D, Jayaraj, S

**Abstract:** To assess the benefits of frenotomy on breastfeeding in infants, and determine the influence of age. A telephone questionnaire of all patients diagnosed with tongue-tie over 12 months was conducted pre-intervention and 1-month post-intervention. The Infant Breastfeeding Assessment Tool was used to assess breastfeeding. Of 54 infants diagnosed with tongue-tie, 78 per cent of mothers participated in the survey. Eighty-six per cent of patients underwent frenotomy, with no surgical complications. In the frenotomy group, 81 per cent of mothers reported improvement in breastfeeding, versus 17 per cent in the non-surgical group ( $p = 0.0074$ ). In the frenotomy group, the mean ( $\pm$ standard deviation) Infant Breastfeeding Assessment Tool score was  $3.33 \pm 1.51$  pre-intervention, versus  $9.19 \pm 2.44$  post-intervention ( $p = 0.0001$ ). In the non-surgical intervention group, the mean score

(±standard deviation) was  $4.17 \pm 0.75$  pre-intervention, versus  $6.00 \pm 1.73$  post-intervention ( $p = 0.16$ ). For infants who underwent frenotomy, there was a reported improvement in 94 per cent of those aged less than 30 days, versus 68 per cent in infants aged over 30 days ( $p = 0.092$ ). Frenotomy is a safe, short procedure that improves breastfeeding outcomes, and is best performed at an early age.

**Source:** Medline

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**Title:** Multi-disciplinary approach to neonatal ankyloglossia

**Citation:** International Journal of Oral and Maxillofacial Surgery, October 2015, vol./is. 44/(e196), 0901-5027 (October 2015)

**Author(s):** Girgis S., Ali E., Cheng L., Gillan G., Qureshi R., Walder J., Cox P., Aladangady N.

**Language:** English

**Abstract:** Aim: Recent UK media attention paid to tongue-tie release has been reflected in an increase of referrals to our OMFS unit. To date, the gold-standard for management has been drawn up by NICE (2005) to enable breastfeeding. With the collaboration of our neonatal colleagues, we have developed a multidisciplinary approach in order to achieve a systematic and streamlined process. Pilot multidisciplinary approach: National Institute of Clinical Excellence (NICE) guidelines recommend that tongue-tie release should be carried out as early as possible. This correlates with the WHO recommendations of breastfeeding up to the age of 6 months. However, due to the lack of consensus between professional bodies in diagnosis and treatment, mothers have reported limited knowledge of tongue tie and its impact on breast feeding. We propose a midwife led multidisciplinary approach to provide a clear pathway for referral and management of neonatal ankyloglossia. This will involve the participation of infant feeding specialist midwives for assessment of ankyloglossia and direct referral to OMFS team for surgical procedure and management of any complications. Specialist midwives are gradually trained to provide the surgical procedure. The neonates will then be followed up to ensure that the mother is supported with breastfeeding and referred on to an appropriate neonatologist/paediatrician if the issue remains unsolved. Conclusion: This midwife led approach supported by OMFS can be implemented in other Hospital Trusts. Awareness, training and dissemination of information as well as a team approach will be essential in creating successful clinical outcomes and maximising patient satisfaction levels.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

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**Title:** Developing a multidisciplinary tongue-tie service: Pitfalls of setting up

**Citation:** International Journal of Oral and Maxillofacial Surgery, October 2015, vol./is. 44/(e195), 0901-5027 (October 2015)

**Author(s):** Girgis S., Ali E., Qureshi R., Cheng L., Gillan G., Walder J., Cox P., Aladangady N.

**Language:** English

**Abstract:** Background: Neonate tongue-tie has been getting increased media coverage in the UK. This was established following local audit results led by specialist midwives demonstrating an increased number of referrals, the demand of the service within neonatal wards, local community, and the positive outcomes from mothers and babies treated. Our hospital has piloted protocols for neonate midwife led tongue-tie service. This has utilized the input of specialist feeding midwives, the neonatal and OMFS teams. Issues surrounding establishment of a tongue-tie service: Within the National Health Service (NHS), implementation of services, particularly with those requiring a multi-disciplinary team (MDT) input, is challenging and often a catalogue of deficiencies manifest which must be addressed before progression of a robust service can occur. From our experience, these issues have included the utilization of the correct equipment in the neonatal ward, availability and manpower of staff when such clinics are running and the documentation of the procedure. It is paramount to ensure effective training of all midwives supported by OMFS team to ensure that they actively examine neonates with feeding problems, confirming that the correct consent documentation is available. Moreover the setting up of a code within the system is essential to ensure payment of the procedures is recorded and accounted for, and the generation of discharge summaries to general practitioners. Development of algorithms, effective communication, appropriate training, and willingness of all parties, from managerial through to specialist midwives and clinical leads has contributed in the development of such a service within our hospital. Conclusion: Developing a MDT systemic approach which is efficient and effective, not only increases patient safety and experience, but also ensures good use of NHS resources. Awareness of the pitfalls is pivotal when setting up this type of midwife led service.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

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**Title:** An audit to assess the effectiveness of the tongue-tie service at sunderland royal hospital (SRH)

**Citation:** International Journal of Gynecology and Obstetrics, October 2015, vol./is. 131/(E356) (October 2015)

**Author(s):** Yeates L.

**Language:** English

**Abstract:** Objectives: ~10% of babies are born with some degree of tongue-tie - an abnormally short lingual frenulum that may restrict mobility of the tongue. ~13% of cases presenting with breastfeeding difficulties have tongue-tie as a contributing factor. Frenulotomy is a safe effective procedure that can be performed to relieve symptoms affecting mother and baby. SRH launched a new service to assess and treat tongue-tie in 2014. The clinic referrals and outcome were assessed to facilitate development of local and regional guidelines and services: particularly as current NICE guidance (2005) is non-specific and requests continuous audit of current services. Method: Current guideline used to create six standards: 100% compliance with each standard anticipated. 66 post-procedure questionnaires were collected from 12 SRH outpatient clinics 1/10/14- 22/12/14 and used to assess service. Frenulotomy was performed in all patients as part of a structured intervention plan including multiple feeding assessments. Compliance with the standards was determined. To assist the service evaluation the mothers were encouraged to complete free text comments. Results: All patients had presented with feeding difficulties. 1. Infants aged less than 16 weeks- 100% of cases. 2. Resolution of latch difficulties - improvement in 77% of women presenting with problems; 88% improvement in cohort. 3. Resolution of breastfeeding discomfort - 86% improvement in women presenting with symptoms; 77% improvement in cohort. 4. Women able to restart breastfeeding - 6/10. 5. Improvement in weight gain - 8/11 cases with poor weight gain a presenting feature had a positive response to the intervention. 6. Questionnaire completion - response rate 61%. Free text comments: "support amazing", "quick easy good service", "very happy". Conclusions: SRH offers a midwife-led holistic service incorporating tongue-tie treatment with immediate breastfeeding support and advice, ensuring follow up and support. The standards were ambitious, but this can be used as a baseline for re-audits with more appropriate standards and enhanced pre- and post- assessment of this service and increased sample size. Circulating service standards can encourage the increase of regional services and enhanced mother and baby care during tongue-tie management with the ultimate aim to facilitate increased breastfeeding rates. This audit can provide a baseline to monitor improvement, refine current guidelines, and emphasises the importance of audit form completion.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

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**Title:** Breastfeeding difficulties and oral cavity anomalies: The influence of posterior ankyloglossia and upper-lip ties

**Citation:** International Journal of Pediatric Otorhinolaryngology, October 2015, vol./is. 79/10(1714-1717), 0165-5876;1872-8464 (01 Oct 2015)

**Author(s):** Pransky S.M., Lago D., Hong P.

**Language:** English

**Abstract:** Objective: Oral cavity anomalies may contribute to breastfeeding problems. The objective of this study was to describe our experience in a high-volume breastfeeding

difficulty clinic with a focus on posterior ankyloglossia and upper-lip ties. Methods: A retrospective review of patients from a dedicated breastfeeding difficulty clinic from January 2014 to December 2014 was performed. Those identified to have ankyloglossia and/or upper-lip ties underwent release procedures. Subjective breastfeeding changes were documented afterwards. Results: Of the 618 total patients, 290 (47%) had anterior ankyloglossia, 120 (19%) had posterior ankyloglossia, and 14 (2%) had upper-lip tie. Some patients had both anterior ankyloglossia and upper lip-tie (6%), or posterior ankyloglossia and upper-lip tie (5%). For those with anterior ankyloglossia, 78% reported some degree of improvement in breastfeeding after frenotomy. For those with posterior ankyloglossia, 91% reported some degree of improvement in breastfeeding after frenotomy. Upper lip-tie release also led to improved breastfeeding (100%). Conclusions: Anterior and posterior ankyloglossia and upper-lip tie, or combinations thereof, were commonly recognized in our study population. Many newborns, however, also had no oral cavity anomalies. Although causation cannot be implied, these oral cavity anomalies may contribute to breastfeeding difficulties in some cases.

**Publication Type:** Journal: Article

**Source:** EMBASE

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**Title:** The development of a tongue assessment tool to assist with tongue-tie identification

**Citation:** Archives of Disease in Childhood: Fetal and Neonatal Edition, July 2015, vol./is. 100/4(F344-F348), 1359-2998;1468-2052 (01 Jul 2015)

**Author(s):** Ingram J., Johnson D., Copeland M., Churchill C., Taylor H., Emond A.

**Language:** English

**Abstract:** Aim To produce a simple tool with good transferability to provide a consistent assessment of tongue appearance and function in infants with tongue-tie. Methods The Bristol Tongue Assessment Tool (BTAT) was developed based on clinical practice and with reference to the Hazelbaker Assessment Tool for Lingual Frenulum Function (ATLFF). This paper documents 224 tongue assessments using the BTAT. There were 126 tongue assessments recorded using the BTAT and ATLFF tools to facilitate comparisons between them. Paired BTAT assessments were obtained from eight midwives who were using the new assessment tool. Results There was acceptable internal reliability for the four-item BTAT (Cronbach's alpha=0.708) and the eight midwives who used it showed good correlation in the consistency of its use (ICC=0.760). The BTAT showed a strong and significant correlation (0.89) with the ATLFF, indicating that the simpler BTAT could be used in place of the more detailed assessment tool to score the extent of a tongue-tie. Midwives found it quick and easy to use and felt that it would be easy to teach to others. Conclusions The BTAT provides an objective, clear and simple measure of the severity of a tongue-tie, to inform selection of infants for frenotomy and to monitor the effect of the procedure.

**Publication Type:** Journal: Article

**Source:** EMBASE

**Full Text:**

Available from *Highwire Press* in [Fetal and Neonatal](#)

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**Title:** Treatment of ankyloglossia and breastfeeding outcomes: a systematic review.

**Citation:** *Pediatrics*, Jun 2015, vol. 135, no. 6, p. e1458., 1098-4275 (June 2015)

**Author(s):** Francis, David O, Krishnaswami, Shanthi, McPheeters, Melissa

**Abstract:** Ankyloglossia is a congenital condition characterized by an abnormally short, thickened, or tight lingual frenulum that restricts tongue mobility. The objective of this study was to systematically review literature on surgical and nonsurgical treatments for infants with ankyloglossia. Medline, PsycINFO, Cumulative Index of Nursing and Allied Health Literature, and Embase were searched up to August 2014. Two reviewers independently assessed studies against predetermined inclusion/exclusion criteria. Two reviewers independently extracted data regarding participant and intervention characteristics and outcomes and assigned quality and strength-of-evidence ratings. Twenty-nine studies reported breastfeeding effectiveness outcomes (5 randomized controlled trials [RCTs], 1 retrospective cohort, and 23 case series). Four RCTs reported improvements in breastfeeding efficacy by using either maternally reported or observer ratings, whereas 2 RCTs found no improvement with observer ratings. Although mothers consistently reported improved effectiveness after frenotomy, outcome measures were heterogeneous and short-term. Based on current literature, the strength of the evidence (confidence in the estimate of effect) for this issue is low. We included comparative studies published in English. The evidence base is limited, consisting of small studies, short-term outcomes, and little information to characterize participants adequately. No studies addressed nonsurgical interventions, longer-term breastfeeding or growth outcomes, or surgical intervention compared with other approaches to improve breastfeeding, such as lactation consultation. A small body of evidence suggests that frenotomy may be associated with mother-reported improvements in breastfeeding, and potentially in nipple pain, but with small, short-term studies with inconsistent methodology, strength of the evidence is low to insufficient. Copyright © 2015 by the American Academy of Pediatrics.

**Source:** Medline

**Full Text:**

Available from *Pediatrics* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

Available from *Highwire Press* in [Pediatrics](#)

Available from *Free Access Content* in [Pediatrics](#)

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**Title:** Ankyloglossia and breastfeeding

**Citation:** Paediatrics and Child Health (Canada), May 2015, vol./is. 20/4(209-213), 1205-7088 (01 May 2015)

**Author(s):** Rowan-Legg A., Cummings C., Gander S., Grimes R.B., Grueger B., Pancer L.B., Wood E.P., Gorodzinsky F.P.

**Language:** English

**Abstract:** Ankyloglossia ('tongue-tie') is a relatively common congenital anomaly characterized by an abnormally short lingual frenulum, which may restrict tongue tip mobility. There is considerable controversy regarding its diagnosis, clinical significance and management, and there is wide variation in practice in this regard. Most infants with ankyloglossia are asymptomatic and do not exhibit feeding problems. Based on available evidence, frenotomy cannot be recommended for all infants with ankyloglossia. There may be an association between ankyloglossia and significant breastfeeding difficulties in some infants. This subset of infants may benefit from frenotomy (the surgical division of the lingual frenulum). When an association between significant tongue-tie and major breastfeeding problems is clearly identified and surgical intervention is deemed to be necessary, frenotomy should be performed by a clinician experienced with the procedure and using appropriate analgesia. More definitive recommendations regarding the management of tongue-tie in infants await clear diagnostic criteria and appropriately designed trials.

**Publication Type:** Journal: Article

**Source:** EMBASE

**Full Text:**

Available from *National Library of Medicine* in [Paediatrics and Child Health](#)

Available from *National Library of Medicine* in [Paediatrics and Child Health](#)

Available from *Free Access Content* in [Paediatrics and Child Health](#)

Available from *ProQuest* in [Paediatrics and Child Health](#)

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**Title:** Tongue-tie and frenotomy in infants with breastfeeding difficulties: Achieving a balance

**Citation:** Archives of Disease in Childhood, May 2015, vol./is. 100/5(489-494), 0003-9888;1468-2044 (01 May 2015)

**Author(s):** Power R.F., Murphy J.F.

**Language:** English

**Abstract:** Aims: Currently there is debate on how best to manage young infants with tongue-tie who have breastfeeding problems. One of the challenges is the subjectivity of the outcome variables used to assess efficacy of tongue-tie division. This structured review documents how the argument has evolved. It proposes how best to assess, inform and



manage mothers and their babies who present with tongue-tie related breastfeeding problems. Methods: Databases were searched for relevant papers including Pubmed, Medline, and the Cochrane Library. Professionals in the field were personally contacted regarding the provision of additional data. Inclusion criteria were: infants less than 3 months old with tongue-tie and/or feeding problems. The exclusion criteria were infants with oral anomalies and neuromuscular disorders. Results: There is wide variation in prevalence rates reported in different series, from 0.02 to 10.7%. The most comprehensive clinical assessment is the Hazelbaker Assessment Tool for lingual frenulum function. The most recently published systematic review of the effect of tongue-tie release on breastfeeding concludes that there were a limited number of studies with quality evidence. There have been 316 infants enrolled in frenotomy RCTs across five studies. No major complications from surgical division were reported. The complications of frenotomy may be minimised with a check list before embarking on the procedure. Conclusions: Good assessment and selection are important because 50% of breastfeeding babies with ankyloglossia will not encounter any problems. We recommend 2 to 3 weeks as reasonable timing for intervention. Frenotomy appears to improve breastfeeding in infants with tongue-tie, but the placebo effect is difficult to quantify. Complications are rare, but it is important that it is carried out by a trained professional.

**Publication Type:** Journal: Review

**Source:** EMBASE

**Full Text:**

Available from *HighWire Press* in [Archives of disease in childhood](#)

Available from *ProQuest* in [Archives of Disease in Childhood](#)

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**Title:** Tongue-tie (TT) in newborns: Follow-up at 1-2 weeks post TT division

**Citation:** Journal of Paediatrics and Child Health, April 2015, vol./is. 51/(39), 1034-4810 (April 2015)

**Author(s):** McGoldrick R., Solari D., Hogan M., Corrigan I., Todd D.A.

**Language:** English

**Abstract:** Background: Division of tongue-tie (TT) has been shown to improve the breastfeeding experience including decreased pain and more efficient attachment. Little is known of the follow up of babies who require division of TT (1) and our aims were to contact mothers of babies at 1-2 weeks following TT division. Methods: Mothers and babies who attended the TT clinic from 1st July 2013 to 31st June 2014 were included in this study. We contacted the mothers by phone and using a phone survey we assessed their breastfeeding experience post TT division. Other prospective data collected included gestational age (GA), birthweight (BW), gender, age at time of TT division and post TT division complications. Results: During the 1 year period, 185/194(94.9%) babies that presented at the TT clinic had their TT divided. Their GA, BW and male:female ratio were 39.3 +/- 1.6 weeks, 3.47 +/- 0.54 Kg and 123:72(66.3% male) respectively. The mean age of

TT division was 9.5 +/- 5.0 days. Mothers contacted were 123/185(66.5%) at a babies mean age of 21.7 +/- 8.3 and 12.1 +/- 7.8 days post division. While 82/123(66.7%) mother/baby dyads had needed to supplement their babies feeds with expressed breast milk or formula at some stage, 111/123(90.2%) were breastfeeding at the time of follow-up. Additionally, 90/123(73.2%) had experienced a decrease in pain following the division and 116/123(94.3%) had no concerns over the healing of the wound. Conclusion: These results suggest that division of TT is a low-risk procedure that is effective in improving short term breastfeeding outcomes. It is now necessary to continue this follow-up over a longer period.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

**Full Text:**

Available from *Wiley* in [Journal of Paediatrics and Child Health](#)

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**Title:** To examine what percentage of patients referred to centre for tongue tie release were referred for breastfeeding difficulties and how many of them stopped breastfeeding as a result

**Citation:** Irish Journal of Medical Science, March 2015, vol./is. 184/(S165-S166), 0021-1265 (March 2015)

**Author(s):** Nolan C., Corry P., O'Rourke C., Fenton J.E.

**Language:** English

**Abstract:** Aim: To examine what % of patients referred to centre for Tongue Tie release were referred for breastfeeding difficulties and how many of them stopped breastfeeding as a result. Methods: Observational analysis with planned data collection. Examining all paediatric patients referred to a tertiary referral centre over a 1-year period. Results: 96 patients were included, with a male:female ratio of 2:1. 87 % were specifically referred due to breastfeeding difficulties, with the median age at referral being 15 days. 28 % of women had stopped breastfeeding as a result of complications potentially related to the tongue-tie including: difficulty latching on (35 %), sore nipples (24 %) and baby failing to gain weight (6 %). Referral to the centre was made either by the GP (42 %) or lactation nurse (36 %). The average length of time awaiting appointment with ENT was 46 days. On examination of the patients, the median grade of tongue-tie found was 3. 30 % of patients required a general anaesthetic, with these patients having a higher average age. The incidence of complications as a result of the surgery was reported as 3 % with prolonged or excessive bleeding being the only complication identified. Conclusion: This study identifies a high incidence of breast feeding difficulties in mothers of children who are referred for tongue tie procedures.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

**Full Text:**

Available from *Springer Link Journals* in [Irish Journal of Medical Science](#)

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**Title:** Tongue-tie in the newborn: early diagnosis and division prevents poor breastfeeding outcomes

**Citation:** Breastfeeding review : professional publication of the Nursing Mothers' Association of Australia, March 2015, vol./is. 23/1(11-16), 0729-2759 (01 Mar 2015)

**Author(s):** Todd D.A., Hogan M.J.

**Language:** English

**Abstract:** BACKGROUND: In 2011, the Centenary Hospital Neonatal Department guidelines were modified and recommended delaying the division of infant tongue-tie (TT) until after 7 days of life. This paper looks at the effect of these guidelines in practice by comparing patient characteristics and breastfeeding practices before and after the change. METHODS: We used prospective data from mothers and babies who had TT division to compare breastfeeding practices in 2008 and 2011. Data included: gestational age (GA), birth-weight (BWt), gender, age at TT division, degrees of TT and maternal feeding pre/post TT division. RESULTS: There were no significant differences between the 2 years in the rate of TT division, 115/2471 (4.7%) vs 144/2891 (5.0%) (TT divided/birth number) or GA 39.6 +/- 1.2 vs 39.5 +/- 1.2 (weeks); BWt 3.48 +/- 0.45 vs 3.52 +/- 0.50 (kg); and Male:Female 77:38 (2.0:1.0) vs 91:53 (1.7:1.0). There was, however, an increase in the age the TT was divided 6.5 +/- 4.5 vs 9.7 +/- 6.2 (days)  $p < 0.0001$ ; and an increased number of mothers unable to continue breastfeeding and providing expressed breastmilk: 4/115 (3.5%) vs 25/144 (17.4%)  $p = 0.0004$  (expressing/divided). A majority (> 90%) of mothers noted an immediate improvement in feeding and decreased nipple pain. No significant complications occurred. CONCLUSION: The rate of TT division did not change after the implementation of new guidelines post 2011. However, there has been a significant increase in the age at TT division and the number of mothers unable to breastfeed, primarily due to nipple pain and poor attachment. If feeding is problematic, the TT should be divided as early as possible to reduce breastfeeding cessation and improve breastfeeding satisfaction.

**Publication Type:** Journal: Article

**Source:** EMBASE

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**Title:** Tongue-tie assessment and division: a time-critical intervention to optimise breastfeeding.

**Citation:** Journal of neonatal surgery, Jan 2015, vol. 4, no. 1, p. 3., 2226-0439 (2015 Jan-Mar)

**Author(s):** Donati-Bourne, Jack, Batool, Zainab, Hendrickse, Charles, Bowley, Douglas

**Abstract:** Recent reports have highlighted the benefits of surgical division of tongue-tie (frenulotomy) in infants with breastfeeding difficulties. There is no clear consensus defining the appropriate age for this procedure to be undertaken in selected infants. We aimed to evaluate the impact of delays in time between referral and frenulotomy in relation to maternal abandonment of breastfeeding. This was a prospective cohort study done in outpatient Neonatal Surgery Department, Birmingham Heartlands Hospital, Birmingham, UK, between April 2013 and July 2013. All infants, referred to our tongue-tie clinic between April and July 2013, were studied prospectively. Referral time lags were calculated using computer records; details regarding breastfeeding were collected by an independent interviewer completing a questionnaire. Seventy patients were included. The median infant age at clinic was 28.5 days [range 1-126]. Fifty eight [82%] of mothers had breastfeeding difficulty and their infants were confirmed to have a prominent tongue-tie. By the time of their clinic attendance, breastfeeding had either not been established or abandoned in 21%. Despite difficulty, 61% of mothers persisted breastfeeding and all these mothers consented for frenulotomy. At time of clinic, median age of infants whose mothers had abandoned breastfeeding was 37 days [range 1-80] compared to 27 days [range 1-126] in infants whose mothers had persisted. We demonstrated a time-critical dimension for frenulotomy: delay beyond 4-weeks from referral to assessment of neonatal tongue-tie is more likely to be associated with abandonment of breastfeeding. Timely assessment and division of tongue-tie in selected infants can therefore play an important role in a birthing unit's breastfeeding strategy.

**Source:** Medline

**Full Text:**

Available from *National Library of Medicine* in [Journal of Neonatal Surgery](#)

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**Title:** Developing a nurse-delivered frenulotomy service

**Citation:** Otolaryngology - Head and Neck Surgery (United States), January 2015, vol./is. 152/1(149-152), 0194-5998;1097-6817 (31 Jan 2015)

**Author(s):** Rose K., Kasbekar A.V., Flynn A., De S.

**Language:** English

**Abstract:** Objectives. Tongue tie (ankyloglossia) describes a short lingual frenulum that can lead to breastfeeding difficulties. It affects between 4% and 10% of infants and can be treated by frenulotomy. We developed a nurse-delivered frenulotomy service at a tertiary pediatric hospital and audited our results. Study Design. Observational study. Setting. Tertiary pediatric hospital. Subjects and Methods. An outpatient tongue tie clinic was set up by an ear, nose, and throat consultant. Tongue tie division was undertaken using a standard technique without the need for anesthesia or analgesia, as per National Institute for Health and Care Excellence guidelines. Subsequently, a senior nurse was trained to undertake the clinic independently and saw most referrals. Patient satisfaction data were collected via questionnaires. Results. Referrals to the service increased from 57 (2009) to 296 (2012). Outcome data from outpatient frenulotomy are discussed. Parent satisfaction measures

were similar for both nurse- and doctor-delivered treatment. If all frenulotomies were undertaken in nurse-delivered clinics, a total of 3830 could have been saved in 2012, compared with the cost of doctor-delivered care. Conclusion. A nurse-delivered outpatient frenulotomy service is a safe and cost-effective method of delivering such care. We have demonstrated reduced costs and reduced waiting times without compromising patient satisfaction or the quality of care provided.

**Publication Type:** Journal: Article

**Source:** EMBASE

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**Title:** Is frenotomy effective in improving breastfeeding in newborn babies with tongue-tie? A literature review.

**Citation:** British Journal of Midwifery, 2015, vol./is. 23/11(790-797), 09694900

**Author(s):** Burrows, Sally, Lanlehin, Rosemary

**Language:** English

**Publication Type:** Academic Journal

**Source:** CINAHL

**Full Text:**

Available from *British Journal of Midwifery* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

Available from *EBSCOhost* in [British Journal of Midwifery](#)

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**Title:** The development of a new breast feeding assessment tool and the relationship with breast feeding self-efficacy.

**Citation:** Midwifery, 2015, vol./is. 31/1(132-137), 02666138

**Author(s):** Ingram, Jenny, Johnson, Debbie, Copeland, Marion, Churchill, Cathy, Taylor, Hazel

**Language:** English

**Abstract:** Objective: to develop a breast feeding assessment tool to facilitate improved targeting of optimum positioning and attachment advice and to describe the changes seen following the release of a tongue-tie. Design: development and validation of the Bristol Breastfeeding Assessment Tool (BBAT) and correlation with breast feeding self-efficacy. Setting: maternity hospital in South West England. Participants: 218 breast feeds (160 mother-infant dyads); seven midwife assessors. Findings: the tool has more explanation than other tools to remind those supporting breast-feeding women about the components of an efficient breast feed. There was good internal reliability for the final 4-item BBAT

(Cronbach's alpha=0.668) and the midwives who used it showed a high correlation in the consistency of its use (ICC=0.782). Midwives were able to score a breast feed consistently using the BBAT and felt that it helped them with advice to mothers about improving positioning and attachment to make breast feeding less painful, particularly with a tongue-tied infant. The tool showed strong correlation with breast feeding self-efficacy, indicating that more efficient breast feeding technique is associated with increased confidence in breast feeding an infant. Conclusions: the BBAT is a concise breast feeding assessment tool facilitating accurate, rapid breast feeding appraisal, and targeting breast feeding advice to mothers acquiring early breast feeding skills or for those experiencing problems with an older infant. Accurate assessment is essential to ensure enhanced breast feeding efficiency and increased maternal self-confidence. Implications for practice: the BBAT could be used both clinically and in research to target advice to improve breast feeding efficacy. Further research is needed to establish its wider usefulness.

**Publication Type:** Academic Journal

**Source:** CINAHL

**Full Text:**

Available from *Midwifery* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

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**Title:** Tongue-tie and breastfeeding in newborns-mothers' perspective

**Citation:** Breastfeeding medicine : the official journal of the Academy of Breastfeeding Medicine, November 2014, vol./is. 9/9(430-437), 1556-8342 (01 Nov 2014)

**Author(s):** Riskin A., Mansovsky M., Coler-Botzer T., Kugelman A., Shaoul R., Hemo M., Wolff L., Harpaz S., Olchov Z., Bader D.

**Language:** English

**Abstract:** MATERIALS AND METHODS: This was a single-center observational study using a structured survey. All newborns with TT born in 2005-2010 were identified; two controls without TT were assigned for each. Mothers were interviewed using a uniform structured questionnaire regarding breastfeeding experience, challenges, lactation consultation, and frenotomy, if performed. RESULTS: One hundred eighty-three TT mothers and 314 controls were interviewed. Although the overall rates of breastfeeding problems in the first month were similar (59% vs. 52%, respectively), TT mothers reported significantly more problems with latching, prolonged breastfeeding, and infant's exhaustion during feedings, but not pain or sore nipples. Breastfeeding rates at 6 months were similar. TT mothers more frequently used pumped breastmilk to supplement breastfeeding. Significantly more TT mothers sought consultation after discharge, and a significantly greater proportion of them felt that lactation consultation helped. Eighty-seven percent of the mothers were aware of their children's TT, yet only 50% associated it with breastfeeding problems. Of the TT infants at 2 years of age or older, 11.9% were reported to have speech problems. The possibility of frenotomy was mentioned to 69% of mothers, and it was performed in 35% of cases.

Procedure satisfaction was generally poor, except for when done to solve breastfeeding problems. CONCLUSIONS: TT infants had significantly more breastfeeding problems in the first month, but similar rates and durations of breastfeeding. Early diagnosis and lactation consultation may assist mother-infant dyads substantially. Mothers whose infants underwent frenotomies for breastfeeding more frequently found the procedure alleviated breastfeeding problems. OBJECTIVE: This study explored clinical implications of tongue-tie (TT) on breastfeeding from the mothers' perspective and evaluated the assistance provided.

**Publication Type:** Journal: Article

**Source:** EMBASE

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**Title:** Prevalence of breastfeeding difficulties in newborns with a lingual frenulum: A prospective cohort series

**Citation:** Breastfeeding Medicine, November 2014, vol./is. 9/9(438-441), 1556-8253;1556-8342 (01 Nov 2014)

**Author(s):** Haham A., Marom R., Mangel L., Botzer E., Dollberg S.

**Language:** English

**Abstract:** Objective: The prevalence of a lingual frenulum in newborn infants is reportedly 0.3-12%. The purpose of this study was to describe the prevalence of a lingual frenulum based on the Coryllos classification in nonselected newborn infants after delivery, hypothesizing that it is higher than the values reported in the literature. Study Design: The lingual frenula of 200 healthy infants were evaluated by visual examination and palpation within the first 3 days after delivery. The frenulum was categorized according to the four Coryllos classifications. Each infant's mother responded, immediately after the examination, to a structured questionnaire on the quality and type of feeding. An additional structured telephone interview with the 179 breastfeeding mothers was conducted 2 weeks later. Results: All but one infant (n=199) had an observable or palpable lingual frenulum that was Coryllos type 1 (n=5), type 2 or 3 (n=147), or type 4 (n=47). Although our study was not powered enough to test for any correlation between the cessation of breastfeeding and the type of frenulum, we found no statistical correlation between the Coryllos type of lingual frenulum and the presence of breastfeeding difficulties. Conclusions: A lingual frenulum is a normal anatomical finding whose insertion point and Coryllos classification are not correlated with breastfeeding difficulties. We suggest that the term "lingual frenulum" should be used for anatomical description and that the term "tongue-tie" be reserved for a lingual frenulum associated with breastfeeding difficulties in newborns.

**Publication Type:** Journal: Article

**Source:** EMBASE

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**Title:** Tongue tie: The evidence for frenotomy

**Citation:** Early Human Development, November 2014, vol./is. 90/11(765-768), 0378-3782;1872-6232 (01 Nov 2014)

**Author(s):** Brookes A., Bowley D.M.

**Language:** English

**Abstract:** Tongue tie or ankyloglossia is a congenital variation characterised by a short lingual frenulum which may result in restriction of tongue movement and thus impact on function. Tongue tie division (frenotomy) in affected infants with breastfeeding problems yields objective improvements in milk production and breastfeeding characteristics, including objective scoring measures, weight gain and reductions in maternal pain. For the majority of mothers, frenotomy appears to enhance maintenance of breastfeeding. Tongue tie division is a safe procedure with minimal complications. The commonest complication is minor bleeding. Recurrence leading to redivision occurs with rates of 0.003-13% reported; this appears to be more common with posterior than anterior ties. There are limited reports indicating that prophylactic frenotomy may promote subsequent speech development; however, evidence is currently insufficient to condone this practice and further good quality research into this area is warranted.

**Publication Type:** Journal: Review

**Source:** EMBASE

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**Title:** Division of Ankyloglossia and its effectiveness in improving associated breastfeeding difficulties. The next step

**Citation:** British Journal of Oral and Maxillofacial Surgery, October 2014, vol./is. 52/8(e77), 0266-4356 (October 2014)

**Author(s):** Dennis J., Gallagher J.

**Language:** English

**Abstract:** Ankyloglossia is considered to represent a congenital abnormality. It is the existence of a thick, tight, short or inelastic lingual frenulum. Increased attachment results in restriction of tongue movement, particularly protrusion beyond the lower alveolar ridge. Movements required for breastfeeding such as protrusion and elevation of the tongue are difficult and generally unsuccessful. NICE guidelines state that if ankyloglossia is present and causing feeding difficulties that a simple frenulotomy is indicated. It is a simple and relatively easy procedure with few complications. NICE states that there is insufficient evidence to support this. It is recognised that this is an area of controversy. Patients are identified through referrals to Maxillofacial units stating that the infant is experiencing



feeding difficulties due to ankyloglossia. Assessment involves determining the nature of the feeding difficulties, examining tongue movement and the appearance of the frenulum. This audit has been carried out since August 2009 and presented at BAOMS at previous years. They concluded frenulotomy is effective in significantly improving breastfeeding in infants experiencing such difficulties due to ankyloglossia. The data collection proforma has been trialled at four different units and is verified. Our current objective is to produce a real time web based data collection facility and to help provide the evidence that is needed to support and update the NICE guidelines. This presentation shows the development of a live web based national database for ankyloglossia using a validated proforma to gather the evidence to support division of ankyloglossia in infants experiencing associated breastfeeding difficulties.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

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**Title:** The impact and importance of early diagnosis of posterior ankyloglossia: A case series

**Citation:** Archives of Disease in Childhood, October 2014, vol./is. 99/(A571-A572), 0003-9888 (October 2014)

**Author(s):** Oakley N.J., Kallappa C.

**Language:** English

**Abstract:** Background Ankyloglossia is a developmental anomaly causing restricted tongue mobility. Posterior types are usually identified latest and least commonly. Currently, there are no standardised national/international guidelines for diagnosis. This case series aims to highlight the importance of early diagnosis to reduce cases identified only following significant morbidity. Methods Over a 2 year period, consecutive patients diagnosed with posterior ankyloglossia were identified. Results Of the 15 patients identified, mean age at diagnosis was 24 days (range 4-42). 8(53%) had regained their birthweight however, for 3(38%) of these, weight gain was slow/inadequate. The remaining 7(47%) had lost weight with a mean weight loss of 8.54% (range 2.56-16.06). 13(86%) were exclusively breastfed, 1(7%) both breast- and formula-fed, and 1(7%) formula-fed. Presenting features included poor latch (60%), weight loss (47%), sore nipples (40%), irritability (40%), poor weight gain (20%), increased feed duration (20%), and lethargy (20%). 9(60%) were diagnosed by breastfeeding co-ordinators, 4(26%) by community midwives, and 1(7%) each by a paediatrician and neonatal nurse. All patients underwent a frenotomy following which both weight gain and feeding improved in 11(73%). Behavioural improvements were noted in 8(53%). 11(73%) mothers felt their baby's symptoms had improved. All of the 6 mothers who initially described symptoms of their own reported improvement. Conclusion For many infants, posterior ankyloglossia is often detected only once feeding has deteriorated enough to result in significantly poor weight gain or weight loss. To prevent this and other morbidities shown in this small case series, a standardised assessment tool may be a useful method to facilitate earlier diagnosis and improve clinical practice.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

**Full Text:**

Available from *Highwire Press* in [Archives of disease in childhood](#)

Available from *ProQuest* in [Archives of Disease in Childhood](#)

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**Title:** Does frenotomy improve breast-feeding difficulties in infants with ankyloglossia?

**Citation:** Pediatrics international : official journal of the Japan Pediatric Society, Aug 2014, vol. 56, no. 4, p. 497-505, 1442-200X (August 2014)

**Author(s):** Ito, Yasuo

**Abstract:** The aim of this systematic review was to critically examine the existing literature regarding the effectiveness of tongue-tie division in infants with ankyloglossia, using the new grades of recommendations, assessment, development, and evaluation (GRADE) rating system. A clinical question was structured according to patient, intervention, comparison, and outcome, as follows: in infants with poor breast-feeding and ankyloglossia (patient), does frenotomy (intervention), compared to lactation support alone (comparison), improve feeding (outcome)? An electronic literature search was systematically conducted from databases including PubMed, Japana Centra Revuo Medicina (Igaku Chuo Zasshi), CINAHL, and Cochrane Library using the key words "ankyloglossia," "tongue-tie," "frenotomy," and/or "breast-feeding" in English and equivalent terms in Japanese. The literature search yielded four randomized clinical trials, and 12 observational studies for analysis. The quality of the literature was rated in regard to the two most important outcomes (sucking/latching, and nipple pain) and five less important outcomes (milk supply/milk production, continuation of breast-feeding, weight gain, adverse events, and dyad distress) in accordance with the GRADE system. Evidence levels of the most important outcomes were rated either A (strong evidence) or B (moderate evidence), and less important outcomes were rated C (weak evidence); every outcome consistently showed a favorable effect of frenotomy on breast-feeding. The literature review supported an overall moderate quality of evidence for the effectiveness of frenotomy for the treatment of breast-feeding difficulties in infants with ankyloglossia. No major complications from frenotomy were reported. © 2014 Japan Pediatric Society.

**Source:** Medline

**Full Text:**

Available from *Wiley* in [Acta Paediatrica Japonica](#)

Available from *Wiley* in [Pediatrics International](#)

Available from *Wiley* in [Paediatrica Japonica](#)

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**Title:** Tongue-tie in the newborn: what, when, who and how? Exploring tongue-tie division.

**Citation:** Breastfeeding review : professional publication of the Nursing Mothers' Association of Australia, Jul 2014, vol. 22, no. 2, p. 7-10, 0729-2759 (July 2014)

**Author(s):** Todd, David A

**Abstract:** The division of tongue-tie (TT) in babies with feeding problems has become a more accepted procedure in recent years (Bowley & Arul 2013). Although case series reports had described the benefits of division in problematic breastfeeding (Ballard, Auer & Khoury et al 2002; Notestine 1990), it was not until randomised controlled trials (RCTs) provided significant evidence of improvement that the procedure became more accepted (Berry, Griffiths & Westcott 2012; Buryk, Bloom & Shope 2011; Dollberg et al 2006; Emond et al 2014; Hogan, Westcott & Griffiths 2005). However there are still several areas of debate. These include: 1) what type of TT produces problems with feeding and thus what type of TT should be divided, 2) who should have the procedure, 3) when should the TT division be performed and 4) how should the TT be divided. In this review I will discuss these areas of debate and shed some light on this very common but often devastating congenital condition.

**Source:** Medline

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**Title:** Randomised controlled trial of early frenotomy in breastfed infants with mild-moderate tongue-tie

**Citation:** Archives of Disease in Childhood: Fetal and Neonatal Edition, May 2014, vol./is. 99/3(F189-F195), 1359-2998;1468-2052 (May 2014)

**Author(s):** Emond A., Ingram J., Johnson D., Blair P., Whitelaw A., Copeland M., Sutcliffe A.

**Language:** English

**Abstract:** Trial design: A randomised, parallel group, pragmatic trial. Setting: A large UK maternity hospital. Participants: Term infants <2 weeks old with a mild or moderate degree of tongue-tie, and their mothers who were having difficulties breastfeeding. Objectives: To determine if immediate frenotomy was better than standard breastfeeding support. Interventions: Participants were randomised to an early frenotomy intervention group or a 'standard care' comparison group. Outcomes: Primary outcome was breastfeeding at 5 days, with secondary outcomes of breastfeeding self-efficacy and pain on feeding. Final assessment was at 8 weeks; 20 also had qualitative interviews. Researchers assessing outcomes, but not participants, were blinded to group assignment. Results: 107 infants were randomised, 55 to the intervention group and <2 to the comparison group. Five-day outcome measures were available for 53 (96%) of the intervention group and 52 (100%) of the comparison group, and intention-to-treat analysis showed no difference in the primary outcome - Latch, Audible swallowing, nipple Type, Comfort, Hold score. Frenotomy did improve the tongue-tie and increased maternal breastfeeding self-efficacy. At 5 days, there was a 15.5% increase in bottle feeding in the comparison group compared with a 7.5% increase in the intervention group. After the 5-day clinic, 44 of the comparison group had

requested a frenotomy; by 8 weeks only 6 (12%) were breastfeeding without a frenotomy. At 8 weeks, there were no differences between groups in the breastfeeding measures or in the infant weight. No adverse events were observed. Conclusions: Early frenotomy did not result in an objective improvement in breastfeeding but was associated with improved self-efficacy. The majority in the comparison arm opted for the intervention after 5 days.

**Publication Type:** Journal: Article

**Source:** EMBASE

**Full Text:**

Available from *Highwire Press* in [Fetal and Neonatal](#)

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**Title:** Ankyloglossia its impact breastfeeding.

**Citation:** Nursing for women's health, Apr 2014, vol. 18, no. 2, p. 122-129, 1751-486X (2014 Apr-May)

**Author(s):** Henry, Lydia, Hayman, Rebecca

**Abstract:** This article contrasts two very different experiences of one mother breastfeeding her two sons to demonstrate the potential impact of ankyloglossia on breastfeeding. When too restrictive, ankyloglossia, also known as tongue-tie, can cause the newborn to ineffectively suckle at the breast. Breastfeeding difficulties can occur, such as long feedings or damaged nipples. When nurses, lactation consultants and other providers recognize this situation, they can refer women for further care and treatment, which can ultimately lead to breastfeeding success. © 2014 AWHONN.

**Source:** Medline

**Full Text:**

Available from *EBSCOhost* in [Nursing for Women's Health](#)

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**Title:** Frenotomy for tongue-tie in newborn infants

**Citation:** Journal of Paediatrics and Child Health, April 2014, vol./is. 50/(25), 1034-4810 (April 2014)

**Author(s):** O'Shea J.E., Foster J.P., Jacobs S.E., O'Donnell C.P.F., Davis P.G.

**Language:** English

**Abstract:** Background: Tongue-tie is a condition where the frenulum attaches near the tip of the tongue and has been cited as a cause of poor breastfeeding and maternal nipple pain. Prevalence in newborns is 4%-11%. Frenotomy is commonly performed as treatment. We sought to determine whether frenotomy in infants with tongue-tie resolved breastfeeding problems. Method: We performed a systematic review using the methodology of the

Neonatal Review Group of the Cochrane Collaboration. Results: Five randomised controlled trials met inclusion criteria (n = 305). Meta-analysis of two small studies (n = 117) showed an increased proportion of infants successfully feeding following frenotomy compared to no frenotomy (RR 3.48; 95%CI 2.18-5.56). In these two studies the findings were subjective and one was not blinded. One of the five studies (n = 58) did find objective improvement in breastfeeding scores (MD 3.53; 95%CI 3.1-3.96). Two studies showed a significant improvement in maternal pain scores and two no change. Published data were unsuitable for meta-analysis. There were some methodological shortcomings with the studies. Only two of the five studies blinded both mothers and assessors, one blinded mothers, one assessors and one had no blinding. In all five control groups frenotomy was offered (after the primary outcome was reached) and the uptake was >85%. In one study the authors stated they did not have equipoise, in another it was deemed unethical to not offer frenotomy. No serious complications were reported. Conclusions: We could not determine the effectiveness of frenotomy performed in tongue-tied infants with breastfeeding problems.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

**Full Text:**

Available from *Wiley* in [Journal of Paediatrics and Child Health](#)

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**Title:** A feasibility randomised controlled single blind parallel group trial for frenotomy in tongue tied breast fed babies with mild to moderate tongue tie

**Citation:** Archives of Disease in Childhood, April 2014, vol./is. 99/(A162), 0003-9888 (April 2014)

**Author(s):** Sutcliffe A.G., Whitelaw A., Ingram J., Emond A.

**Language:** English

**Abstract:** Frenotomy is increasingly being advocated for 'tongue tied' infants struggling to breast feed. Evidence for its efficacy is weak. Objective measures of tongue tie are limited. We aimed to determine if randomisation to day zero or day 5 for mild to moderately tongue tied infants would be acceptable to Mothers. We also wished to assess tongue tie using the LATCH score and the HATLFF short form score. Our study was set in a large "Baby Friendly" UK maternity hospital between 2011-2013 Term infants <2 weeks with mild to moderate tongue tie were offered randomisation to immediate or delayed frenotomy (with standard care) by the research midwife. Severity was judged by Hazelbaker Tool HATLFF short form score 6-12 and difficulty in breast feeding by LATCH score (<8) Primary outcome was breast feeding at 5 days and secondary outcomes of breast feeding self efficacy and pain scores. Final assessment was at 8 weeks. Researchers assessing outcomes were blinded to intervention status. Results: 107 infants were randomised 55 to intervention and 52 to comparison group. Five day outcome measures were obtained in 52 (100%) of the comparison and 53 (96%) of the intervention group. ITT analyses showed no difference in

the primary outcome LATCH score. Frenotomy improved breast feeding self efficacy assessment. At 5 days there was a 7.5% increase in bottle feeding in the intervention group and 15% in the comparison group. After the day 5 clinic 44 of the comparison group (who were referred originally with the expectation to have frenotomy) requested frenotomy. By 8 weeks only 6 (12%) were breast feeding without frenotomy. There were no adverse events. Conclusions: Feasibility to sustain breastfeeding for 5 days in tongue tied infants is achievable. Early frenotomy did NOT result in an objective improvement in breastfeeding at five days. But fewer Mothers switched to bottle feeds. This trial funded by NIHR-RFPB sets the scene for a potential multicentre trial using breast feeding at 8 weeks as the primary outcome. Our trial allowed us to further refine tools for assessing breast feeding and tongue tie (ongoing work.).

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

**Full Text:**

Available from *Highwire Press* in [Archives of disease in childhood](#)

Available from *ProQuest* in [Archives of Disease in Childhood](#)

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**Title:** Comparisons of the latching on between newborns with tongue-tie and normal newborns

**Citation:** Journal of the Medical Association of Thailand, March 2014, vol./is. 97/3(255-259), 0125-2208 (MARCH 2014)

**Author(s):** Puapornpong P., Raungrongmorakot K., Mahasitthiwat V., Ketsuwan S.

**Language:** English

**Abstract:** Background: Breastfeeding is recommended as the exclusive feeding for the first six months of the newborns life. Difficulty in latching and breastfeeding resulting from tongue-tie are believed to be a problem. Objective: To compare the latching on between newborns with tongue-tie (ankyloglossia) and normal newborns. Material and Method: The subjects were 833 normal, postpartum women who delivered without complications at HRH Princess Maha Chakri Sririndhorn Medical Center in Nakhon Nayok Province between January and June 2013. Their newborns oral cavities' were checked for tongue-tie screening and diagnoses using Kotlow's criteria. Latch scores were used for latch-on assessment at the second day postpartum. Demographic data and latch scores were collected and analyzed by the t-test, Chi-square test, Odds ratio with 95% confidence interval and One-way of ANOVA test. Results: The data shows that the incidence of tongue-tie was 13.4% (6.2% with mild tongue-tie, 5.5% with moderate tongue-tie, and 1.7% with severe tongue-tie). The mean of latch scores in the tongue-tied groups were significantly lower than that in the normal group, especially in the moderate and severe tongue-tie subgroups. The odds ratios for latch scores were <8 compared between the moderate and severe tongue-tied subgroups and the score in the normal and mild tongue-tied subgroups was 1.4. Conclusion: The latch scores in tongue-tied newborns were significantly lower than those in normal newborns.

**Publication Type:** Journal: Article

**Source:** EMBASE

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**Title:** Does frenotomy improve breast-feeding difficulties in infants with ankyloglossia?

**Citation:** Pediatrics International, 2014, vol./is. 56/4(497-505), 1328-8067;1442-200X (2014)

**Author(s):** Ito Y.

**Language:** English

**Abstract:** The aim of this systematic review was to critically examine the existing literature regarding the effectiveness of tongue-tie division in infants with ankyloglossia, using the new grades of recommendations, assessment, development, and evaluation (GRADE) rating system. A clinical question was structured according to patient, intervention, comparison, and outcome, as follows: in infants with poor breast-feeding and ankyloglossia (patient), does frenotomy (intervention), compared to lactation support alone (comparison), improve feeding (outcome)? An electronic literature search was systematically conducted from databases including PubMed, Japana Centra Revuo Medicina (Igaku Chuo Zasshi), CINAHL, and Cochrane Library using the key words "ankyloglossia," "tongue-tie," "frenotomy," and/or "breastfeeding" in English and equivalent terms in Japanese. The literature search yielded four randomized clinical trials, and 12 observational studies for analysis. The quality of the literature was rated in regard to the two most important outcomes (sucking/latching, and nipple pain) and five less important outcomes (milk supply/milk production, continuation of breast-feeding, weight gain, adverse events, and dyad distress) in accordance with the GRADE system. Evidence levels of the most important outcomes were rated either A (strong evidence) or B (moderate evidence), and less important outcomes were rated C (weak evidence); every outcome consistently showed a favorable effect of frenotomy on breast-feeding. The literature review supported an overall moderate quality of evidence for the effectiveness of frenotomy for the treatment of breast-feeding difficulties in infants with ankyloglossia. No major complications from frenotomy were reported.

**Publication Type:** Journal: Article

**Source:** EMBASE

**Full Text:**

Available from *Wiley* in [Acta Paediatrica Japonica](#)

Available from *Wiley* in [Pediatrics International](#)

Available from *Wiley* in [Paediatrica Japonica](#)

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**Title:** Immediate outcome after frenulotomy for ankyloglossia in a UK OMFS Department

**Citation:** British Journal of Oral and Maxillofacial Surgery, September 2013, vol./is. 51/6(e82), 0266-4356 (September 2013)

**Author(s):** Gruber E.A., Bhatia S.K., Mihalache G., Isherwood G.

**Language:** English

**Abstract:** Introduction: Recent NICE guidance (2005, 2006) has raised awareness of ankyloglossia and the treatment of breastfeeding related problems by frenulotomy. This has resulted in an increased number of requests from health professionals and parents for information and access to this procedure. The only reason for midwifery referral for frenulotomy is the presence of a breastfeeding problem for mother or baby. A rapid access one-stop service is offered by our OMFS unit for management of neonates with ankyloglossia, referred by Lactation Consultants. If deemed necessary, the procedure is performed immediately on the clinic without anaesthetic. The mother is encouraged to feed the baby immediately after. Aims: To assess symptoms and signs, family history of ankyloglossia and outcome after frenulotomy. Methods: A one-year retrospective review of neonatal tongue tie assessments was carried out. A proforma was completed on clinic to record history, examination, procedure and outcome. Results: 75 patients were referred for tongue tie assessment between January and December 2012. The average age at referral was 6 weeks (range 2-28 weeks) and 60% male. The main symptoms were problems feeding, nipple soreness and failure to thrive. 39% had a family history of tongue tie. 45% had severe restriction of tongue extension and elevation, 55% had moderate restriction. 6 patients (8%) did not require frenulotomy. On average, mothers reported that feeding was 80% better immediately after the procedure. There were no associated complications. Conclusions: Division of neonatal ankyloglossia is safe and effective. It is hoped this will reduce rates of early breastfeeding cessation.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

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**Title:** The effect of tongue-tie division on breastfeeding and speech articulation: a systematic review.

**Citation:** International journal of pediatric otorhinolaryngology, May 2013, vol. 77, no. 5, p. 635-646, 1872-8464 (May 2013)

**Author(s):** Webb, Amanda N, Hao, Weibo, Hong, Paul

**Abstract:** To systematically review the outcomes of tongue-tie division procedures in patients with ankyloglossia with the goal of (1) deriving clinically oriented insights into the effect of tongue-tie division procedures and (2) identifying needs in knowledge to stimulate further research. Medline, EMBASE, and Cochrane databases were searched without any limitations, for studies published between 1966 and June 2012. Studies were included (level



4 evidence or above) if subjects of any age had ankyloglossia and underwent tongue-tie release. Outcome measures of interest were any subjective or objective measures of breastfeeding and speech outcomes, or reports of adverse events. In all, 378 abstracts were generated from the literature searches; 20 studies met the criteria for data extraction and analysis. Of those, 15 studies were observational and 5 were randomized controlled trials. Tongue-tie division provided objective improvements in the following: LATCH scores (3 studies); SF-MPQ index (2 studies); IBFAT (1 study); milk production and feeding characteristics (3 studies); and infant weight gain (1 study). Subjective improvements were also noted in maternal perception of breastfeeding (14 studies) and maternal pain scores (4 studies). No definitive improvements in speech function were reported. The only significant adverse events were recurrent tongue-ties that required repeat procedures. Ankyloglossia is a well-tolerated procedure that provides objective and subjective benefits in breastfeeding; however, there was a limited number of studies available with quality evidence. There are no significant data to suggest a causative association between ankyloglossia and speech articulation problems. Aspects of ankyloglossia that would benefit from further research are described, and recommendations for tongue-tie release candidacy criteria are provided. Copyright © 2013 Elsevier Ireland Ltd. All rights reserved.

**Source:** Medline

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**Title:** Benefits of frenulotomy in infants with ankyloglossia.

**Citation:** International journal of pediatric otorhinolaryngology, May 2013, vol. 77, no. 5, p. 762-765, 1872-8464 (May 2013)

**Author(s):** Sethi, Neeraj, Smith, Dominique, Kortequee, Sahr, Ward, Victoria M M, Clarke, Susan

**Abstract:** Ankyloglossia is a common, congenital abnormality often causing feeding difficulties in infants. This study aimed to evaluate indications and outcomes of frenulotomy performed in infants with ankyloglossia for breast-feeding difficulties. 85 patients were prospectively identified as they underwent frenulotomy in Pinderfields Hospital ENT outpatient department between February 2008 and February 2011. 52 patients were successfully followed up with a telephone questionnaire about effects on breast-feeding and any complications. All mothers had experienced problems breast-feeding prior to frenulotomy. Following frenulotomy 40/52 (77%) of mothers reported an improvement in breast-feeding within 2 weeks of the procedure. No complications were reported. This study supports the view that ankyloglossia is a common cause of breast-feeding difficulties. However the lack of universal improvement in breast-feeding following frenulotomy suggests that it is not the only cause of problems and supports the clinician approaching these situations holistically and exploring other causes. Copyright © 2013 Elsevier Ireland Ltd. All rights reserved.

**Source:** Medline

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**Title:** The effects of office-based frenotomy for anterior and posterior ankyloglossia on breastfeeding.

**Citation:** International journal of pediatric otorhinolaryngology, May 2013, vol. 77, no. 5, p. 827-832, 1872-8464 (May 2013)

**Author(s):** O'Callahan, Cliff, Macary, Susan, Clemente, Stephanie

**Abstract:** The objectives of this study were to assess the effect of office-based frenotomy on reversing breastfeeding difficulties among infants with problematic ankyloglossia, and to examine characteristics associated with anterior and posterior ankyloglossia. Mothers of infants who underwent a frenotomy for ankyloglossia from December 2006 through March 2011 completed a post-intervention web-based survey about breastfeeding difficulties they experienced before and after the frenotomy. Maternal-infant dyads had been referred from health providers to a primary care practice for assessment of ankyloglossia. Infants were subsequently classified as having no ankyloglossia, anterior (Type I or Type II) or posterior (Type III or Type IV). There were 311 infants evaluated for ankyloglossia and 299 (95%) underwent a frenotomy. Most infants were classified as having Type III (36%) or IV (49%) ankyloglossia compared to only 16% with anterior (Type I and Type II combined). Differences by classification type were found for gender ( $P=.016$ ), age ( $P=.017$ ), and maxillary tie ( $P=.005$ ). Among survey respondents ( $n=157$ ), infant latching significantly improved ( $P<.001$ ) from pre- to post-intervention for infants with posterior ankyloglossia. Both the presence and severity of nipple pain decreased from pre- to post-intervention among all classifications ( $P<.001$ ). Additionally, 92% of respondents breastfed exclusively post-intervention. The mean breastfeeding duration of 14 months did not differ significantly by classification. Breastfeeding difficulties associated with ankyloglossia in infants, particularly posterior, can be improved with a simple office-based procedure in most cases. The diagnosis and treatment of ankyloglossia should be a basic competency for all primary care providers and pediatric otorhinolaryngologists. Copyright © 2013 Elsevier Ireland Ltd. All rights reserved.

**Source:** Medline

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**Title:** Understanding the experiences of mothers who are breastfeeding an infant with tongue-tie: a phenomenological study.

**Citation:** Journal of human lactation : official journal of International Lactation Consultant Association, May 2013, vol. 29, no. 2, p. 190-195, 1552-5732 (May 2013)

**Author(s):** Edmunds, Janet Elizabeth, Fulbrook, Paul, Miles, Sandra

**Abstract:** Tongue-tie or ankyloglossia is a congenital condition that negatively affects breastfeeding. The thickened, tightened, or shortened frenulum affects the infant's ability to suck and frequently results in sore and painful nipples. Although several studies have investigated outcomes associated with treatment of tongue-tie, none have investigated mothers' experiences of breastfeeding an infant with tongue-tie. This study aimed to

understand the breastfeeding experiences of women whose infants have tongue-tie. A hermeneutic phenomenological design was employed. Data were collected using focused interviews and, following transcription, were analyzed in the phenomenological tradition. Ten women who presented at a breastfeeding clinic with feeding problems, and were diagnosed with tongue-tie, were interviewed on 2 occasions. The analysis revealed a common story of tension between the mothers' expectations and the breastfeeding challenges they faced. Their journey was characterized by 6 distinct phases described in the following themes: Expectations; Something is wrong; Questioning, seeking advice, no real answers; Symptoms and perseverance; Approaching the wall-it's all too much; and finally, Relief. The women in this study described a somewhat harrowing journey, which was at odds with the natural experience they had anticipated. They encountered health professionals who were found to have limited knowledge of tongue-tie and its potential effect on breastfeeding and were unable to provide appropriate advice concerning their breastfeeding difficulties. However, following treatment with frenotomy, their breastfeeding experience improved dramatically. The reported incidence of tongue-tie is significant, and early identification and prompt and effective management would contribute to improved breastfeeding.

**Source:** Medline

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**Title:** Division of tongue tie as an outpatient procedure. Technique, efficacy and safety.

**Citation:** International journal of pediatric otorhinolaryngology, Apr 2013, vol. 77, no. 4, p. 550-552, 1872-8464 (April 2013)

**Author(s):** Mettias, Bassem, O'Brien, Richard, Abo Khatwa, Mohamed M, Nasrallah, Lilian, Doddi, Mouli

**Abstract:** Assessment of the clinical presentations and the outcome of tongue tie division under local anesthesia. Retrospective study. Glan Clwyd Hospital. All babies had tongue tie division in the ENT outpatient clinic under local anaesthesia between May 2010 and June 2011. Preoperative symptoms and parents' feedback were determined using questionnaires based on NICE guidelines. 63 infants had tongue tie division in outpatient clinic. Average age of the procedure was 4.1 weeks. Before the procedure, 66.7% of babies had difficulty in breast-feeding. 11.1% had poor growth. 22.2% had limitation in tongue movement. 27.7% of the mothers had breast problems such as cracking and soreness of the nipples. All the preoperative problems were resolved in 98.4%. 77.1% of parents' comments were positive. They described procedure as quick with minimal distress. 88.9% had no complications following division of tongue tie. Tongue tie division is a simple procedure with minimal complications. It can be undertaken under local anesthesia within first 3 months of life in the outpatient environment. Timely diagnosis, referral and treatment can make a difference in breast-feeding and weight gain. Copyright © 2013 Elsevier Ireland Ltd. All rights reserved.

**Source:** Medline

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**Title:** The evidence and controversies of neonatal ankyloglossia

**Citation:** Irish Journal of Medical Science, March 2013, vol./is. 182/(S41), 0021-1265 (March 2013)

**Author(s):** Naude A.M., Fenton J.E.

**Language:** English

**Abstract:** Background: Tongue tie is an undisputed clinical entity but its classification, significance and treatment has long since been in question, as a consequence practitioners of many specialties having widely different views on the subject. With the recent emphasis on breastfeeding and its benefits, the historical arguments have been re-kindled. Aim: This literature review seeks to critically appraise the research evidence on the impact of ankyloglossia on breastfeeding, its diagnosis and classification, as well as the effectiveness of lingual frenectomy in infants with breastfeeding difficulties. Method: PubMed, EMBASE, Cochrane library and CINAHL Plus were searched inclusively of December 2012. The keyword search terms included ankyloglossia, tongue tie, lingual frenulum, frenotomy, frenulotomy and frenuloplasty. The only limits applied were English language and humans. Review articles, case reports, letters, editorials and articles pertaining to children older than 1 year of age were excluded. Results: The association between ankyloglossia and breastfeeding problems are inconsistent. A number of different classification systems and assessment tools have been suggested in the literature but none have been uniformly accepted or validated. Limited data in prospective cohort studies and randomized controlled studies suggests that lingual frenectomy has a positive impact on maternal nipple pain and trauma, breastfeeding difficulties and weight gain. Conclusion: Well validated diagnostic criteria for the classification of ankyloglossia are needed in order to quantify the therapeutic efficacy of lingual frenectomy, and further randomized controlled trials are necessary to support its clinical application.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

**Full Text:**

Available from *Springer Link Journals* in [Irish Journal of Medical Science](#)

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**Title:** The benefits to breastfeeding and success rates of a frenulotomy in newborns with ankyloglossia.

**Citation:** British Journal of Midwifery, 2013, vol./is. 21/6(439-442), 09694900

**Author(s):** Greenwood, Gabrielle

**Language:** English

**Abstract:** When undertaking the caseholding unit in my second and third years as a student midwife, I built a good rapport with the five women I was going to provide continuity of care for. Ms A, the woman this reflection is based on, was determined to breastfeed but it soon became apparent that the baby, Isobella, was not feeding successfully. When I saw how upset Ms A became and discovered she was considering ceasing breastfeeding, I was desperate to help. When I was assessing both Ms A and Isobella for the cause I identified ankyloglossia. I believe without the ability to recognise ankyloglossia (tongue-tie) many women will discontinue breastfeeding prematurely, which can be an upsetting decision. This reflection will identify and, to an extent, critically evaluate the literature surrounding the benefits of a frenulotomy when ankyloglossia is present in the newborn, with the aim to improve breastfeeding outcomes. Breastfeeding is a pertinent topic in current midwifery, and I believe this reflection will create an awareness of one of the possible reasons women stop breastfeeding, and how we as professionals can prevent this with timely recognition and treatment.

**Publication Type:** Academic Journal

**Source:** CINAHL

**Full Text:**

Available from *British Journal of Midwifery* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

Available from *EBSCOhost* in [British Journal of Midwifery](#)

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**Title:** "Snipping of a tongue tie" in neonates with ankyloglossia and breastfeeding problems: Outcomes and complications

**Citation:** Archives of Disease in Childhood, October 2012, vol./is. 97/(A486), 0003-9888 (October 2012)

**Author(s):** Post E., Daamen J., Balemans W.

**Language:** English

**Abstract:** Background and Aims Breastfeeding is considered the golden standard in neonatal nutrition. One of the complications encountered in breastfeeding is tongue-tie (ankyloglossia), which may eventually lead to aborting breastfeeding. Frenotomy is considered a harmless and effective procedure for ankyloglossia. However, different researchers question the positive effects and emphasize the possible complications, especially when the procedure is performed without general anaesthesia. Aim of our study is to describe the outcomes of frenotomy in neonates. Methods The data of a series of 166 breastfed neonates (110 male, 56 female) with ankyloglossia and breastfeeding problems under 3 months of age were collected. In these neonates frenotomy was performed between January 2008 en 2012 by an experienced paediatrician in the outpatient clinic without general anaesthesia. Parent(s) attended the procedure and (breast)feeding was given within minutes after frenotomy. One week after frenotomy, data on complications and effects on breastfeeding were collected by a telephone interview with one of the

parents. Results 34 Neonates (20%) were lost to follow-up after frenotomy. Of the remaining 132 neonates, 117 (89%) reported improvement in breastfeeding (better latch, less nipple pain or fully breastfed). 12 (9%) Reported no improvement. Improvement was controversial in 3 neonates (2%) because of additional problems affecting breastfeeding. Minor complications were reported in 5 patients (4%). These consisted of need for a mild analgesic or minimal bleeding up to 1-2 minutes. No major side effects were reported. Conclusions Frenotomy without general anaesthesia is a safe and very effective procedure in neonates with tongue-tie experiencing breastfeeding problems.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

**Full Text:**

Available from *Free Access Content* in [Archives of Disease in Childhood](#)

Available from *HighWire Press* in [Archives of disease in childhood](#)

Available from *ProQuest* in [Archives of Disease in Childhood](#)

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**Title:** Tongue tie in infants: Its anatomy and audit of management

**Citation:** Clinical Anatomy, September 2012, vol./is. 25/6(801), 0897-3806 (September 2012)

**Author(s):** Doddi M., Mettias B., O'Brien R.

**Language:** English

**Abstract:** Tongue tie occurs in 4-5% of infants. There is a constant debate about what constitutes tongue tie and its clinical significance. Hence, a difference of opinion exists about whether tongue tie should be divided and if so, the timing and technique. Our objectives are as following: (1) evidence-based review of the anatomy, definitions, classifications, clinical presentations, NICE guidelines, and management of tongue tie, and (2) to assess the efficacy of frenectomy under local anesthetic in the outpatient department based on NICE guideline questionnaires. A retrospective study of 63 patients at Glan Clwyd Hospital between May 2010 and June 2011 was conducted. All patients had frenectomy under local anesthetic in the outpatient department. Outcomes were assessed based on NICE guideline questionnaires. Prior to frenectomy, up to 66.7% babies had difficulty in breast feeding and 11.1% of them had poor growth. All the preoperative problems were resolved in 97.2-98.4%. About 70.8-100% had positive feedback for the procedure. Tongue tie division is a simple procedure with minimal complications. It can be tolerated with local anesthesia in most babies during the early months of life. Early diagnosis and referral can make a difference in breast feeding and weight gain.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

**Full Text:**

Available from *Wiley* in [Clinical Anatomy](#)

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**Title:** A retrospective review of frenotom

**Citation:** International Journal of Pediatric Otorhinolaryngology, September 2012, vol./is. 76/9(1236-1240), 0165-5876;1872-8464 (September 2012)

**Author(s):** Steehler M.W., Steehler M.K., Harley E.H.

**Language:** English

**Abstract:** Objectives: To measure maternal breast feeding benefit after infant frenotomy. To investigate if timing of neonatal/infant frenotomy affects outcome. Study design: Cohort survey and retrospective review. Methods: Medical records of neonates and infants suspected to have ankyloglossia between April 2006 and February 2011 were reviewed. Patient demographic data was compiled. A telephone survey was conducted to gather data on this cohort of patients. Results: Neonatal and infant consultations (N= 367) were performed for feeding difficulties due to suspected ankyloglossia, 302 of these infants underwent frenotomy for ankyloglossia. A total of 91 mothers agreed to participate in a follow-up telephone survey regarding the intervention. Results showed that 80.4% of mothers strongly believed the procedure benefited their child's ability to breastfeed, and 82.9% of mothers were able to initiate/resume breastfeeding after the procedure was performed. The belief that frenotomy significantly benefitted an infant's ability to feed significantly differed in patients that had the procedure performed in the first week of life (86%) as compared to infants that had the procedure performed after the first week of life (74%) ( $p < 0.003$ ). Conclusions: Based on maternal observations, when frenotomy is performed on neonates with ankyloglossia and feeding difficulties in the first week of life, there is more benefit than when it is performed after the first week of life. The population of patients with ankyloglossia is predominantly male with a high familial/genetic correlation associated with the phenotypic trait. Frenotomy for ankyloglossia demonstrates a high degree of maternal satisfaction, is well tolerated and has been shown to improve breastfeeding and decrease pain and difficulty associated with breastfeeding. © 2012 Elsevier Ireland Ltd.

**Publication Type:** Journal: Article

**Source:** EMBASE

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**Title:** Financial implications of having a tongue-tie division service

**Citation:** Clinical Otolaryngology, July 2012, vol./is. 37/(41), 1749-4478 (July 2012)

**Author(s):** Argiris K., Bestman B.E., Padgham N.D.

**Language:** English

**Abstract:** Objectives: Tongue-ties, a common finding in the paediatric age group, are often encountered by otolaryngologists including other specialists. Because of their shared nature, patient pathways are commonly not developed that would facilitate their assessment and subsequent division. In the East Kent area such a service exists and our aim was to demonstrate the financial implications of setting it up, even when compared to the other common paediatric procedures. Methods: We retrospectively collected our data for the period of January 2011-December 2011. All routine, high volume ENT procedures that were performed in the Trust over the past year were recorded. The tariff for each type of procedure included in the study was used to calculate the net income for the Trust. All the collected data was derived from the Trust's Finance department and the waiting list office. Results: We included only high volume procedures (i.e. >100 in a year) in this study. In terms of numbers we performed 266 tongue-tie division procedures that were comparable to the other high volume procedures (tonsillectomy, grommet insertion, septoplasty and FESS). Tonsillectomies were the most common procedure whereby 450 were performed. In terms of income our tongue-tie service contributed about 10% of the total. Further comparative data will be provided. Conclusions: Setting up a tongue-tie division service may benefit ENT departments financially. Moreover it is a quick and safe procedure that is beneficial to patients.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

**Full Text:**

Available from *Wiley* in [Clinical Otolaryngology](#)

Available from *Wiley* in [Clinical Otolaryngology](#)

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**Title:** Tongue-tie, breastfeeding difficulties and the role of Frenotomy

**Citation:** Acta Paediatrica, International Journal of Paediatrics, July 2012, vol./is. 101/7(687-689), 0803-5253;1651-2227 (July 2012)

**Author(s):** Kumar M., Kalke E.

**Language:** English

**Abstract:** A greater emphasis on exclusive breastfeeding in recent years has re-ignited the historical debate over the role of ankyloglossia (tongue-tie) in infants with breastfeeding difficulties. Several prospective cohort studies and randomized control trials have been published in this area in the last 10-15 years. We critically evaluated recent evidence and attempted to answer two important clinical queries in this area, that is, (i) whether ankyloglossia is associated with breastfeeding difficulties and (ii) whether frenotomy helps mother-baby dyad in such setting? Conclusion: Neonates with tongue-tie are at increased risk for breastfeeding difficulties. An early recognition of this association by primary care provider and prompt referral to a lactation consultant is important. In cases with clearly



documented breastfeeding difficulties, frenotomy often results in rapid improvement in symptoms. &#xa9; 2012 Foundation Acta Paediatrica.

**Publication Type:** Journal: Review

**Source:** EMBASE

**Full Text:**

Available from *Wiley* in [Acta Paediatrica](#)

Available from *Wiley* in [Acta Paediatrica](#)

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**Title:** A double-blind, randomized, controlled trial of tongue-tie division and its immediate effect on breastfeeding.

**Citation:** Breastfeeding medicine : the official journal of the Academy of Breastfeeding Medicine, Jun 2012, vol. 7, no. 3, p. 189-193, 1556-8342 (June 2012)

**Author(s):** Berry, Janet, Griffiths, Mervyn, Westcott, Carolyn

**Abstract:** This study investigated if a maternally reported, immediate improvement in breastfeeding following division of tongue-tie is due to a placebo effect. This randomized controlled trial was conducted at Southampton General Hospital, Southampton, UK, in 2003-2004. Sixty breastfed babies 5-115 days old (mean, 32 days; median, 23 days) were randomized to division (Group A) or non-division (Group B). The mother and a trained observer were blinded and assessed breastfeeding before the intervention. Fifty-seven babies were analyzed because blinding failed in three of the babies in Group A. Following the intervention, the mother's and observer's views were noted, and then those infants allocated to non-division had their tongue-tie divided. Seventy-eight percent (21 of 27) of mothers in Group A reported an immediate improvement in feeding following the intervention, compared with 47% (14 of 30) in Group B (two-tailed  $\chi^2$   $p < 0.02$ ; 95% confidence interval, 6-51%). At 1-day follow-up, 90% (54 of 60) reported improved feeding following division. At 3-month follow-up, 92% (54 of 59) still reported improved feeding, with 51% (30 of 59) continuing to breastfeed. There is a real, immediate improvement in breastfeeding, detectable by the mother, which is sustained and does not appear to be due to a placebo effect.

**Source:** Medline

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**Title:** Improving breastfeeding outcomes: the impact of tongue-tie.

**Citation:** Community practitioner : the journal of the Community Practitioners' & Health Visitors' Association, Jun 2012, vol. 85, no. 6, p. 42-44, 1462-2815 (June 2012)

**Author(s):** Jackson, Rosemary

**Abstract:** A tongue-tie (ankyloglossia) is defined as a lingual frenulum that is short, tight and restricts normal tongue movement. The tongue-tied newborn baby then has a mechanical difficulty attaching to his mum's breast and maintaining attachment to feed effectively. In the hands of skilled carers, this mechanical problem can be resolved by releasing the frenulum (frenulotomy) and the baby's access to his/her mother's breast milk be preserved. Published research on this subject has undergone justifiable criticism. Robust methodology was lacking in earlier studies. An overview of the course of researchers' response to critique is discussed. The care pathway in place in mid-Norfolk for mother and baby dyads where the baby's tongue-tie compromises efficient breastfeeding is outlined.

**Source:** Medline

**Full Text:**

Available from *ProQuest* in [Community Practitioner](#)

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**Title:** Effectiveness of the division of ankyloglossia - A multicentre audit

**Citation:** British Journal of Oral and Maxillofacial Surgery, June 2012, vol./is. 50/(S14), 0266-4356 (June 2012)

**Author(s):** Morton P., Gallagher J., Cottom H., Cousin G., McCurley N.

**Language:** English

**Abstract:** Introduction: Ankyloglossia presents with a shortened lingual frenulum. This restricts tongue movements, resulting in breastfeeding difficulties, with poor infant weight gain. Guidelines by the National Institute for Clinical Excellence (NICE) advise the division of ankyloglossia in infants experiencing difficulties with breastfeeding and states that there are no major safety concerns. NICE acknowledges that the evidence for definite benefit is limited. Aim: The pilot audit of the division of ankyloglossia in one centre last year, showed improvement in breastfeeding scores in 100% of cases treated (statistically significant). The aim of this audit is to enlist further UK centres to gather data for analysis forming the basis for a national audit, supporting the division of ankyloglossia as a safe, effective intervention. Method: Infants were referred to the Maxillofacial Departments at Northampton General, Broomfield, Royal Blackburn, and Belfast City Hospitals between 2009 and 2012. The ankyloglossia was divided if the infant was experiencing feeding difficulties and if clearly evident on clinical examination. Breastfeeding was recorded on a scale of 0 (impossible) to 10 (no feeding problems). Results: From 104 procedures, 100% of mothers at Northampton General and Broomfield reported improvements in breastfeeding scores following division of ankyloglossia. Results are being collated from the Royal Blackburn and Belfast City with ongoing statistical analysis. Conclusion: This audit has demonstrated that the division of ankyloglossia in multiple UK centres has improved infant breastfeeding, with no adverse outcomes reported. This methodology could be used nationally to help strengthen the evidence base for the NICE guidelines.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

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**Title:** Neonates presenting with severe complications of frenotomy: A case series

**Citation:** Journal of Medical Case Reports, 2012, vol./is. 6/(no pagination), 1752-1947 (2012)

**Author(s):** Opara P.I., Gabriel-Job N., Opara K.O.

**Language:** English

**Abstract:** Introduction. Tongue-tie or ankyloglossia is an anatomic variation in which the lingual frenulum is thick, short or tight. It may be asymptomatic, or present with complications like breast feeding difficulties or speech, dental and cosmetic problems. The treatment of this condition, where indicated, is frenotomy. This procedure usually has few or no complications. However, when it is done by untrained personnel, it may lead to life-threatening complications. This paper highlights complications that could arise from improper treatment of ankyloglossia. Case presentation. Case 1 was a one-day-old male neonate, a Nigerian of Igbo ethnicity, who was admitted with bleeding from the mouth and passage of dark stools after clipping of the frenulum by a traditional birth attendant. He was severely pale and in hypovolemic shock, with a severed frenulum which was bleeding actively. His packed cell volume was 15%. He was resuscitated with intravenous fluids and a blood transfusion. The bleeding was controlled using an adrenaline pack. He also received antibiotics. He was discharged five days later. Case 2 was a three-day-old male neonate, a Nigerian of Ikwerre ethnicity, who was admitted with profuse bleeding from a soft tissue injury under the tongue, after clipping of the frenulum by a community health worker. He was severely pale and lethargic. He was resuscitated with intravenous fluids and a blood transfusion. The bleeding vessel was ligated with repair of the soft tissue. He also received antibiotics and was discharged home one week later. Conclusion: Treatment of tongue-tie, a benign condition, when done by untrained personnel may result in life-threatening complications. Clinicians should pay more attention to parents' worries about this condition and give adequate counseling or refer them to trained personnel for surgical intervention where clinically indicated. © 2012 Opara et al; licensee BioMed Central Ltd.

**Publication Type:** Journal: Article

**Source:** EMBASE

**Full Text:**

Available from *BioMed Central* in [Journal of Medical Case Reports](#)

Available from *National Library of Medicine* in [Journal of Medical Case Reports](#)

Available from *National Library of Medicine* in [Journal of Medical Case Reports](#)

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**Title:** Accreditation of midwife lactation consultants to perform infant tongue-tie release

**Citation:** International Journal of Nursing Practice, December 2011, vol./is. 17/6(541-547), 1322-7114;1440-172X (December 2011)

**Author(s):** Amir L.H., James J.P., Kelso G., Moorhead A.M.

**Language:** English

**Abstract:** Infants with a tongue-tie or ankyloglossia have a short lingual frenulum, which can lead to problems with breastfeeding: attachment difficulties, nipple pain and damage, poor weight gain and eventually a reduction in milk supply. Trained clinicians can release the frenulum (frenotomy) in infants having difficulty with breastfeeding. Although traditionally performed by medical practitioners, we argue that this simple procedure is within the scope of practice of other clinicians. This paper outlines the process of setting up and maintaining credentialing for midwife lactation consultants (International Board Certified Lactation Consultants (IBCLCs)) to assess infant tongue-ties and perform frenotomy when appropriate at a tertiary maternity hospital. Since 2005, 11 midwives/IBCLCs have been credentialed to perform frenotomies at The Breastfeeding Education and Support Services at The Royal Women's Hospital in Melbourne, Australia. We believe that nurses/midwives/lactation consultants working in other settings could be trained to perform frenotomies, thus enabling faster resolution of breastfeeding problems. © 2011 Blackwell Publishing Asia Pty Ltd.

**Publication Type:** Journal: Article

**Source:** EMBASE

**Full Text:**

Available from *Wiley* in [International Journal of Nursing Practice](#)

Available from *EBSCOhost* in [International Journal of Nursing Practice](#)

Available from *Wiley* in [International Journal of Nursing Practice](#)

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**Title:** Breastfeeding and tongue-tie

**Citation:** Journal of Perinatal Medicine, November 2011, vol./is. 39/(no pagination), 0300-5577 (November 2011)

**Author(s):** Vinas Alvarez M.D., Polanco Teijo F., Macia Cortinas M., Garcia Ruises S., Gonzalez Peteiro M., Duenas Carazo B., Perez Munuzuri E., Alfonsin Somoza G.

**Language:** English

**Abstract:** Background Ankyloglossia is a relatively common congenital anomaly of the lingual frenulum. This condition is the cause, according to different authors, of the 25%-60% of breastfeeding difficulties that occasionally cause not only physiological but also psychological problems for both the mother and the baby. The only tool available to evaluate the function of breastfeeding of newborns with ankyloglossia and its severity is the "Assessment Tool for Lingual Frenulum Function" (ATLFF). We give our experience with four cases of infants under the age of 2 months with moderated ankyloglossia that were evaluated following the criteria set up by Hazelbaker. The reasons for visiting the doctor

were: nipple pain, cracked nipples, difficulty with attachment (latching) and clicking noise when sucking and low weight gain. Additionally, one of the infants presented with dehydration that needed hospital admission and one mother had recurrent mastitis. Frenulotomy was carried out on three of the infants without the need for anaesthesia or suturing and with very little bleeding. A frenectomy was carried out on the fourth infant in the Hospital Clinico de Santiago de Compostela (Spain). There were no complications and they recovered well. Breastfeeding resumed successfully. Discussion Due to the lack of consensus on the treatment of ankyloglossia in babies with difficulties breastfeeding, either a frenectomy or frenulotomy (as it was in our case) can be the treatment of choice. However, in the case of the latter a further intervention may be needed at a later age. Conclusions Assessment of the tongue and its function at birth should be part of the routine examination of the newborn. Frenulotomy should be considered in moderated cases of ankyloglossia that can cause difficulties with breastfeeding as it is a very simple technique that presents no complications and treatment should not be delayed after diagnosis.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

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**Title:** Efficacy of neonatal release of ankyloglossia: A randomized trial

**Citation:** Pediatrics, August 2011, vol./is. 128/2(280-288), 0031-4005;1098-4275 (August 2011)

**Author(s):** Buryk M., Bloom D., Shope T.

**Language:** English

**Abstract:** BACKGROUND: Ankyloglossia has been associated with a variety of infant-feeding problems. Frenotomy commonly is performed for relief of ankyloglossia, but there has been a lack of convincing data to support this practice. OBJECTIVES: Our primary objective was to determine whether frenotomy for infants with ankyloglossia improved maternal nipple pain and ability to breastfeed. A secondary objective was to determine whether frenotomy improved the length of breastfeeding. METHODS: Over a 12-month period, neonates who had difficulty breastfeeding and significant ankyloglossia were enrolled in this randomized, single-blinded, controlled trial and assigned to either a frenotomy (30 infants) or a sham procedure (28 infants). Breastfeeding was assessed by a preintervention and postintervention nipple-pain scale and the Infant Breastfeeding Assessment Tool. The same tools were used at the 2-week follow-up and regularly scheduled follow-ups over a 1-year period. The infants in the sham group were given a frenotomy before or at the 2-week follow-up if it was desired. RESULTS: Both groups demonstrated statistically significantly decreased pain scores after the intervention. The frenotomy group improved significantly more than the sham group ( $P < .001$ ). Breastfeeding scores significantly improved in the frenotomy group ( $P = .029$ ) without a significant change in the control group. All but 1 parent in the sham group elected to have the procedure performed when their infant reached 2 weeks of age, which prevented additional comparisons between the 2 groups.

CONCLUSIONS: We demonstrated immediate improvement in nipplepain and breastfeeding scores, despite a placebo effect on nipple pain. This should provide convincing evidence for those seeking a frenotomy for infants with significant ankyloglossia. Copyright &#xa9; 2011 by the American Academy of Pediatrics.

**Publication Type:** Journal: Article

**Source:** EMBASE

**Full Text:**

Available from *Pediatrics* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

Available from *Highwire Press* in [Pediatrics](#)

Available from *Free Access Content* in [Pediatrics](#)

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**Title:** Division of ankyloglossia-Its effectiveness in improving associated breastfeeding difficulties

**Citation:** British Journal of Oral and Maxillofacial Surgery, June 2011, vol./is. 49/(S4-S5), 0266-4356 (June 2011)

**Author(s):** Cottom H., Gallagher J.

**Language:** English

**Abstract:** Introduction: Ankyloglossia is characterized by the existence of a tight, thick, or inelastic lingual frenulum, preventing adequate protrusion of the tongue beyond the lower alveolar ridge. Elevation and protrusion of the tongue is required for breastfeeding therefore in ankyloglossia feeding is often difficult. NICE guidelines advocate frenulotomy describing the procedure as safe and simple, not requiring anaesthesia in neonates. There is however limited evidence regarding its clinical effectiveness. Therefore the aim of this audit was to assess the effectiveness of frenulotomy in improving breastfeeding difficulties associated with ankyloglossia. Method: Inclusion criteria encompassed referrals, to Northampton Maxillofacial Department (August 2009-December 2010), stating that the infant was experiencing feeding difficulties as a result of tongue-tie. Clinical examination evaluated the movements of the tongue and the appearance of the frenulum. Ease of breastfeeding (0, impossible, to 10, no problems) was then recorded by mother before and after frenulotomy if indicated, with any complications. Results: 40 infants were identified as having ankyloglossia causing feeding difficulties. Twenty-five were male and fifteen were female, giving a M:F ratio of 1.7:1. The time elapsed from referral to treatment varied from 0 to 98 days, demonstrating an average delay in referral of 7 days. Following frenulotomy 100% of mothers found an improvement in breastfeeding and in 40% complete resolution of the feeding problem was achieved. No complications were recorded. Conclusion: This audit demonstrates that simple frenulotomy is effective in significantly improving breastfeeding in infants experiencing difficulties as a result of tongue tie, with no recorded complications.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

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**Title:** A systematic review of frenotomy for ankyloglossia (Tongue Tie) in breast fed infants

**Citation:** Archives of Disease in Childhood, April 2011, vol./is. 96/(A62-A63), 0003-9888 (April 2011)

**Author(s):** Constantine A.H., Williams C., Sutcliffe A.G.

**Language:** English

**Abstract:** Aims: Tongue tie effects at most 2% of infants and may be a normal variant. National Institute of Clinical Excellence has recently supported the use of frenotomy, while acknowledging that evidence is limited. The Dutch have recently abandoned frenotomy nationally. Thus we looked for secondary evidence via a systematic review. Methods: PubMed, Cochrane and DARE databases were searched. References of included studies were reviewed (last search: 26 November 2010). We included controlled and uncontrolled studies involving term infants with ankyloglossia and breastfeeding difficulties undergoing frenotomy. Studies without adequate patient data, those focusing on problems other than breastfeeding, of preterm infants, of infants with severe congenital abnormalities were excluded. Two reviewers applied selection criteria and extracted data independently. Health related outcomes considered were: Duration of breastfeeding, LATCH score, Subjective measure of latch or suck, Maternal breast symptoms, Infant weight gain. Results: In 17 studies, 733 infants with ankyloglossia and breastfeeding difficulties were included, 680 of whom underwent frenotomy. Generally, performing frenotomy for ankyloglossia was associated with improvements in breastfeeding characteristics. 67.2% (275/409) of infants were breastfeeding at 3 months post-frenulotomy. Maternal nipple pain was significantly reduced following frenulotomy in all studies at follow-up. A significant improvement in an objective measure of latch (LATCH score) was demonstrated in two of the three studies using this outcome measure. Few adverse events were reported; 1% of infants had minor complications. Conclusion: Our review suggests that frenotomy is a safe procedure that may facilitate breastfeeding in women who may otherwise have given up, due to tongue tie. BUT most studies were not randomised. What is needed here is a properly designed RCT to determine if there is any true benefit for outcomes such as breast feeding at 6 weeks post procedure.

**Publication Type:** Journal: Conference Abstract

**Source:** EMBASE

**Full Text:**

Available from *Free Access Content* in [Archives of Disease in Childhood](#)

Available from *Archives of Disease in Childhood* in [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#)

Available from *Highwire Press* in [Archives of disease in childhood](#)

Available from *ProQuest* in [Archives of Disease in Childhood](#)

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**Title:** Tongue-tie and breastfeeding: a review of the literature.

**Citation:** Breastfeeding review : professional publication of the Nursing Mothers' Association of Australia, Mar 2011, vol. 19, no. 1, p. 19-26, 0729-2759 (March 2011)

**Author(s):** Edmunds, Janet, Miles, Sandra C, Fulbrook, Paul

**Abstract:** In Australia, initial exclusive breastfeeding rates are 80%, reducing to 14% at 6 months. One factor that contributes to early breastfeeding cessation is infant tongue-tie, a congenital abnormality occurring in 2.8-10.7% of infants, in which a thickened, tightened or shortened frenulum is present. Tongue-tie is linked to breastfeeding difficulties, speech and dental problems. It may prevent the baby from taking enough breast tissue into its mouth to form a teat and the mother may experience painful, bleeding nipples and frequent feeding with poor infant weight gain; these problems may contribute to early breastfeeding cessation. This review of research literature analyses the evidence regarding tongue-tie to determine if appropriate intervention can reduce its impact on breastfeeding cessation, concluding that, for most infants, frenotomy offers the best chance of improved and continued breastfeeding. Furthermore, studies have demonstrated that the procedure does not lead to complications for the infant or mother.

**Source:** Medline

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