

## TONGUE-TIE – AN INTRODUCTION

*This handout illustrates what is meant by the term ‘tongue-tie’ and summarises some of the major perspectives. The information in this hand-out is not meant as a substitute for professional advice as it provides only an introduction to the issues.*

### What is Tongue-Tie?

Tongue-tie (partial ankyloglossia) is a congenital abnormality of the mouth in which the thin membrane connecting the tongue to the base of the mouth (the lingual frenulum) limits movement of the tongue, either because it is too short or attached in such a manner that it “ties down” the tip of the tongue (Berg, 1990, p. 109; Hong et al., 2010). To breastfeed correctly an infant must open their mouth wide and then move their tongue forwards to draw the nipple and surrounding breast tissue well into their mouth (Amir, James, & Beatty, 2005). The tongue cups the breast and creates a pressure seal as well as moving and directing the milk to initiate the suck-swallow-breathe pattern. Without a good ‘latch’ on the breast, the infant may not be able to milk the breast effectively or may inadvertently hurt the mother while feeding. Some tongue-tied babies breastfeed well, but most remove milk less efficiently than babies without tongue-tie (Hazelbaker, 2010). Tongue-tie is problematic where the tongue’s restricted mobility causes difficulties in feeding (from the breast or bottle). Tongue-tie occurs in approximately 1.7 – 4.8% of newborns (Buryk, Bloom, & Shope, 2011) and some kinds appear to be more common in male babies. Tongue-tie is relatively common (e.g. 12.8%) in outpatient mother-baby dyads experiencing breastfeeding difficulties (Ballard, Auer, & Khoury, 2002). Anterior and posterior tongue-ties have been described in the research literature, along with lip-ties (Hong et al., 2010).

### Symptoms of Tongue-Tie

Tongue-tie has been linked to a number of symptoms in mother and baby including:

- Reduced milk supply
- Sore nipples or a sensation of “chomping”
- Nipple blanching and vasospasm
- Thrush (damage caused by the poor latch is a great place for thrush to settle)
- Mastitis
- Trouble latching the baby (baby may become frustrated)
- Very long or frequent feeds
- Baby making a clicking noise or spilling milk out the side of their mouth
- Baby being described as “windy” or as having “colic”
- Low weight gains or “failure to thrive”
- Reflux

## The Tongue-Tie Controversy

Experts disagree about whether tongue-tie causes problems and what should be done about it (Amir et al., 2005). Reports of tongue-tie go back centuries and some early texts recommended the midwife simply sever the tie with a sharp fingernail (Raveenthiran, 2012). It has been argued that tongue-tie was less visible in recent decades because so many women have used artificial milk substitutes instead of breastfeeding (Webb, Hao, & Hong, 2013). It is also possible that more tongue-ties are identified now due to the increase in specialist lactation professionals (Hong et al., 2010). Some medical sources state that tongue-ties do not cause any difficulty with sucking or swallowing (Berg, 1990), but this is inconsistent with reports of feeding problems in 25 – 44% of infants with tongue-ties (Berry, Griffiths, & Westcott, 2012). Many professionals believe tongue-tie can contribute to difficulties with feeding and potentially to speech or dental issues as an adult (Berg, 1990; Hazelbaker, 2010; Miranda & Milroy, 2010; Verco, 2007; Yeh, 2008). Acceptance of tongue-tie appears to be more common among health professionals involved in breastfeeding support than among those who see babies infrequently or within a broader scope of practice. The position with the most research support is that mouth anatomy varies from infant to infant and that a diagnosis of “tongue-tie” is only useful and appropriate where unusual anatomy is causing functional problems with feeding, breathing, or other important activities.

### Types of Tongue-Tie

In most people the tongue attaches to the mouth in a way that allows plenty of movement, but in some people the tongue is tethered, restricting mobility. In an anterior tongue-tie the lingual frenulum is obvious towards the front of the mouth, as shown in Pictures 1 and 2. The tongue may or may not be ‘heart shaped’ (pulled into a heart shape at the front) as a result of the frenulum attachment (Hazelbaker, 2010).



Pictures 1 & 2: Anterior tongue-ties (note the obvious lingual frenulum membrane)

In a posterior tongue-tie the connection is further back, towards the base of the tongue (Coryllos et al, 2004, cited in Hazelbaker, 2010). One expert has described posterior tongue-tie as involving a “broad band running from side to side at the base of the tongue” (Westcott, 2009, cited in Hazelbaker, 2010, p. 132). Some posterior ties are hidden under the oral mucosa. Posterior tongue-tie is more controversial than anterior tongue-tie, perhaps because the positioning further back makes it less obvious and harder to diagnose.

Picture 3 shows one kind of posterior tongue-tie.



Picture 3: *Baby with posterior tongue-tie*

### **Lip-Ties**

Lip-ties refer to tightness of the maxillary labial frenulum (or frenum). This is the small fold of tissue which runs between your upper lip and gum (you can feel it with your tongue). Most people have no significant frenulum attachment, but sometimes this frenulum attaches further down the gum, or runs between the front teeth and attaches behind them, causing restricted movement of the upper lip. Lip-tie can also cause a gap between the front two teeth. An upper labial tie can occur on its own or in conjunction with a tongue-tie. The tightness of the frenulum can vary. Some whānau value lip-ties or tongue-ties as part of their unique family heritage and appearance.

Pictures 4, 5 & 6 show babies with lip-tie. Note the tightness in Picture 4 which makes it difficult to move the upper lip, and the gap between the front teeth in Picture 5.



Pictures 4, 5 & 6: *Various kinds of lip-tie in babies with and without teeth.*

An upper labial tie may restrict movement of the upper lip, making it difficult for the baby to latch effectively to the breast. Once latched onto the breast, the baby's upper lip may be tucked inwards, resulting in a shallow latch. The baby may be a 'clicky' feeder who takes in a lot of air during a feed. Breastfeeding may be painful for the mother. An older baby's upper teeth may dig into the breast during a feed, causing indentations or damage. An early diagnosis may prevent milk supply issues.

## Assessing Tongue-Tie

Assessment of tongue-tie is controversial because “there is no generally agreed definition of what constitutes a problematic tongue-tie” (Amir et al., 2005, p. 243). Hazelbaker (2010, p. 126) argues that an assessment should answer three fundamental questions:

- 1) Can the tongue move freely in all the ways it normally should?
- 2) If not, to what degree is it restricted?
- 3) What impact do the restrictions have on the individual?

Some authors suggest that examining the tongue and assessing tongue function should form a routine part of the neonatal examination (Ballard et al., 2002). Several assessment measures have been designed to provide some consistency of diagnosis, but their psychometric properties (reliability and validity) are still being explored. A small initial study found that two expert raters using the Hazelbaker Assessment Tool for Lingual Frenulum Function (HATLFF) agreed in 96% of cases about whether or not to recommend frenotomy for a particular baby (Amir, James, & Donath, 2006).

Assessment should focus primarily on function rather than appearance (Berg, 1990; Hazelbaker, 2010). The assessor will check whether the baby can stick their tongue out and lift it towards the roof of their mouth (while their mouth is wide open). Some babies can lift their tongue all the way up, and half way is enough for most babies to breastfeed successfully. Most tongue-tied babies can only lift their tongues when their mouths are mostly closed. Tongue-tie should always be considered in the context of the breastfeeding dyad: mother and baby are a system, and what matters is how they work together. It is possible that elasticity in the floor of the mouth or in the frenulum itself may compensate to some degree for a tongue-tie, or that a mother may be able to maintain sufficient milk-supply despite a suboptimal latch.



## Treatment of Tongue-Tie

There is not yet consensus regarding treatment of tongue-tie, although the evidence in favour of a simple frenotomy (clipping) is mounting. There is a tension between taking action too early (when it might have come right without intervention) and too late (by which time the mother may be exhausted and baby may have learned bad habits). Earlier treatment (e.g. before two weeks of age) may result in quicker improvements and better breastfeeding outcomes (Berry et al., 2012). Some authors have suggested an ineffective latch could result from biomechanical problems and thus respond to chiropractic intervention (Miller, Miller, Sulesund, & Yevtushenko, 2009) or osteopathy. Exercises to improve tongue placement and movement efficiency may enable a better latch in tongue-tied babies (Hazelbaker, 2010).

Some babies with tongue-tie are able to breastfeed successfully without medical intervention. It is vital that your breasts are emptied completely and often, so if your baby is not feeding well you will need to express milk by hand or with a breast pump at least 8 times a day in order to keep / get your milk supply up (La Leche League Great Britain, 2011). Feeding in different positions, softening your breast before feeds or tilting the nipple / starting with baby's chin further away to encourage a deeper latch may help compensate for an unusual tongue or mouth shape. Watson Genna describes several breastfeeding

positions which may increase feed efficiency in tongue-tied babies (2008, cited in Hazelbaker, 2010). La Leche League also produce pamphlets on tongue-tie with suggestions for improving breastfeeding before and after treatment (La Leche League Great Britain, 2011). Research has found no clear relationship between severity of the tongue-tie and severity of the symptoms, which may occur more often with subtle posterior tongue-ties than with the more widely recognised anterior tongue-ties (Hong et al., 2010). There is some evidence that tongue-tied infants are able to latch onto the breast more effectively if placed skin-to-skin in a 'biological nurturing' position and given full use of their hands to pull the breast into their mouth (Watson Genna & Barak, 2010).

Some professionals recommend waiting 1-4 years for a tongue-tie to 'come right' by itself as the infant's frenulum may grow, stretch or break naturally over time (Berg, 1990). It has been argued that an infant may appear to have tongue-tie when in fact the tip of the tongue is not yet fully developed. Waiting until the primary teeth have appeared allows time for the tongue to grow away from the frenulum (Berg, 1990). However, the surgery to correct tongue-tie usually becomes more complicated as the child grows, and the concern has been raised that a child may learn incorrect tongue movements for speech or swallowing, or the mother cease breastfeeding in the meantime. Hazelbaker points out that switching to bottle-feeding does not guarantee easy, comfortable feeding for tongue-tied infants and may result in a "drink or drown" phenomenon due to an overwhelming flow of milk through over-large teat holes (Hazelbaker, 2010). Apnoea, temporary cessation of breathing, is also an issue. A preliminary study of oxygen saturation levels in tongue-tied babies raises questions about whether they are able to get sufficient oxygen during (breast or bottle) feeds: "babies who experience significant drops in oxygen saturation often will refuse to latch on to the breast altogether" (Mukai et al, 1991, cited in Hazelbaker, 2010, p. 82).

There are two common options for physically rectifying a tongue- or lip- tie. Frenotomy (clipping) involves a doctor lifting the tongue and cutting through the lingual frenulum with sharp, sterile, blunt-end scissors. The procedure takes only a few seconds. Babies' reactions vary according to the severity of the tongue-tie. There may be some bleeding (usually just a few drops of blood). In most cases the baby can be calmed within a few minutes of having the procedure. The other option for correcting a tongue-tie is for the membrane to be cut by a laser in a dental surgery. The laser cauterises as it cuts so there is no blood initially, although it may bleed later on. Some doctors will only clip anterior tongue-ties, some will also clip posterior tongue-ties and lip-ties. There is a general consensus that treatment of older children should usually take place under general anaesthesia, which carries risks (Yeh, 2008), although adults who have been clipped without pain relief report little discomfort (Hazelbaker, 2010). Treatment is performed on a case-by-case basis after consultation with appropriate health professionals (Merdad & Mascarenhas, 2010).

A recent review of the tongue-tie research concluded that frenotomy is a "relatively straightforward and safe procedure with very low complication rates" which "improves many aspects of breastfeeding" including enhanced milk transfer and maternal breast health (Webb et al., 2013, p. 645). Amir and colleagues (2005) state that infants younger than 3 months old should not require anaesthesia. Occasional adverse effects of tongue-division have been mentioned in the literature, including damage to the tongue and submandibular ducts (Webb et al., 2013), but these are extremely rare (Hong et al., 2010) and no such complications have occurred in any of the frenotomy studies to date (e.g. Miranda & Milroy, 2010). Most authors agree that frenotomy is a low-risk procedure when carried out on newborns by qualified practitioners (Buryk et al., 2011). Anecdotal reports suggest that being restrained while the tongue is divided may be distressing for some older children.

Recurrent tongue-tie occurs occasionally (it was reported in only 2 of 11 studies covered by the review and the tongue reattached in only 3.7% of cases) which may necessitate a second or subsequent clipping (Webb et al., 2013).

After a frenotomy the baby is encouraged to breastfeed immediately. Breastfeeding mothers may or may not feel an immediate difference. Randomised, controlled studies (including those with a carefully designed 'sham' procedure) support maternal reports of an immediate reduction in pain and/or improvement in the latch in most cases (Ballard et al., 2002; Berry et al., 2012; Dollberg, Botzer, Grunis, & Mimouni, 2006). Parents tend to be satisfied with the procedure (Amir et al., 2005) and say they would do it again (Berry et al., 2012). Sometimes it may take 2-3 days for the tongue to recognise that it has extra movement. Some professionals encourage parents to exercise their baby's tongue; for example gently lifting it with a clean finger and poking their tongue out to encourage the baby to copy. Such exercises are done approximately three times every three hours for three days to facilitate increased tongue movement.

### Summary

Tongue-tie is a complicated and controversial issue and opinions among health professionals vary. Initial research examining parents' experiences suggest that they are often frustrated by contradictory advice and a seeming lack of knowledge about tongue-tie amongst health professionals (Edmunds, Fulbrook, & Miles, 2013). New research is being published all the time, with implications for what might be considered "best practice". Therefore, the information in this hand-out may become out-of-date rapidly. We recommend consulting a variety of sources to inform your decision making and trusting your instincts and intellect in making the best decision for your family.

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