# Dental Insights - Tongue-Tie Update: How Oral Restrictions Impact Feeding, Speech and Sleep Across the Lifespan

**DentaNet Symposium 2022, 29.01.2022**

**Speaker: Richard Baxter DMD, MS**

- Owner of the Alabama Tongue Tie Center (10+ years of experience in tongue and lip tie treatment and research)
- Author of the book Tongue-Tied (also available in Danish)

# Top 3 Dental Insights

## 1. Tongue ties can significantly affect quality of life

Why? - Because normal tongue mobility is crucial for the development of the palate width (with a major impact on nasal cavity space and therefore breathing), breastfeeding, eating, speech and sleep.

To compensate for the reduced mobility of the tongue, the patient may also experience overloading of other muscle groups and the TMJ (temporomandibular joint = jaw joint).

## 2. Treatment for lip tie and tongue tie is only offered to patients who are symptomatic

NOTE: There is not always a correlation between the degree of restriction and the patient's symptoms.

Thus, a patient who is clinically categorized with a mild restriction may have more and more severe symptoms than one who is categorized with a moderate or severe restriction.

## 3. The best possible treatment outcome is achieved by:

Careful diagnostic and assessment of the patient.

Use of laser (minimal to no bleeding, highest precision, fast procedure, least post-operative pain).

Follow-up with aftercare (= stretching of the tissue) and control.

Interdisciplinary collaboration with other relevant healthcare professionals depending on the patient's symptoms, including OMFT practitioners (oromyofunctional training), chiropractors, osteopaths, breastfeeding consultants, etc.

**That was Top 3 Dental Insights.**

**Get the rest of the notes below and as a PDF at the bottom of this mail.**

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**DentaNet Symposium 2022, 29.01.2022, notes written by Sarah Fjellerup Jarmer**

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**In this summary you can read about:**

— Everything we need to know to get started helping our patients with symptomatic tight tongue and/or lip ties, including:

- Definition
- Symptoms and symptoms
- Diagnosis
- Treatment options
- Read more

**Definition of a tight tongue and lip tie**

Embryologic residual tissue left behind around week 12 of fetal development, consisting of connective tissue.

Has been known, described and treated since the earliest Japanese writings.

Occurrence: seen in 4-10% of all patients. If PTT (posterior tongue ties) are included, the number is probably closer to 25%.

Remember — frequent does not mean normal and does not require treatment (think caries).

Tongue ties and lip ties often occur together.

The tongue should be able to rest with the back of the tongue on the palate and the tip of the tongue behind 1+1 without touching the teeth.

**Symptoms**

There is great variation between patients, even within the same phenotype. Symptoms also change throughout an individual's life.

Symptoms are most common in the areas of eating, breathing, speech, sleep, headaches, neck and shoulder pain and TMJ dysfunction (TMD).

**Eating**

A very complex process involving 8 tongue muscles and 6 cranial muscles.

**Eating**

- A very complex process involving 8 tongue muscles and 6 cranial nerves.

**Breathing**

- Tongue not in the roof of the mouth -> development of a high palate -> limited space in the nasal cavity -> mouth breathing -> sleep apnea.
- Tongue lies in the floor of the mouth -> falls back into the pharynx during sleep -> sleep apnea.
- Many adults also experience much easier "nasal breathing" after clipping. This is due to loosening of the tight fascia that connects to the nose.

**Speech**

- Delayed speech.
- Stuttering, lisping, slurred speech.

**Sleep**

- See under breathing.

NOTE: Poor sleep in children has a major impact on brain development (which mainly occurs during deep sleep). Therefore, a tight tongue tie has major consequences if it keeps the child in light sleep because they are constantly being woken up (see under breathing). Especially in the first 2 years of a child's life, brain development occurs at record speed, which is why a tight tongue tie during this period can have major consequences for the child's brain in the future.

**Headaches, neck and shoulder pain**

- Due to compensatory muscle activity and the connected fasciae.

**TMJ dysfunction (TMD)**

- Overload propagates back into the jaw joint due to the inability to rest the tongue on the roof of the mouth.)
- Being able to rest the tongue against the roof of the mouth helps stabilize the temporomandibular joint (TMJ). If it is not resting on the roof of the mouth, you will have to actively hold your tongue at all times and there will be a strain all the way back in the joint (just like holding your arm straight out in front of you will strain your shoulder).
- Furthermore, loosening the fascia -> less neck and shoulder tension -> less tension in the TMJ.

**Symptoms in children**

Common symptoms in children and infants:

- Sucking blisters on the upper lip.
- Severe nipple pain in the mother during breastfeeding (e.g. VAS score 9).

- Excessive regurgitation, stomach pain and reflux (inadequate vacuum means these children swallow more air than others).
- Thrush or other fungal infection (due to the inability to clean the back of the tongue by friction against the palate).
- Tip: Two-colored tongue (clean and pink at the front with a marked transition to dirty/ discolored at the back) is a sign that the tongue cannot clean itself against the roof of the mouth.
- Constipation (unable to form a food bolus - swallows food whole).
- Delayed speech.
- Diastema mediale (note: splayed position is normal in the primary and mixed dentition, but a "lonely" diastema mediale with no other splayed position is not normal - should trigger an examination for a tight lip band).
- ADHD (due to poor sleep - hyperactive to stay awake - no wonder ADHD is treated with central stimulant medication - kids are tired! They don't sleep well at night because they can't breathe properly).

**Diagnostics**

- Diagnosis always starts with symptom history.
    - Have the patient fill out the symptom history in advance (Baxter's form can be downloaded here: TongueTieAL.com/professionals)

Why? Because symptoms and functionality are far more important for diagnosis than appearance.

There is not always a correlation between the degree of restriction and the patient's symptoms. For example, a patient who is clinically categorized with a mild restriction may have more and more severe symptoms than someone who is categorized with a moderate or severe restriction.

- There are several different classifications and diagnostic tools.
    - Recommendation: The tongue ligament is best assessed when the tongue is lifted rather than when the tongue is extended (tongue elevation more important than protrusion).
- Note: Observe and question the patient at rest - the tongue should be relaxed on the palate and the lips closed relaxed.
- Procedure for the clinical examination (functional classification).
    - Tip: Stand behind the patient when assessing tongue and lip ties.

- Tongue tie: mouth opened max, tongue placed on the papilla incisiva - the yawning ability with the tongue on the papilla incisiva is compared to the maximum yawning ability and is called TRMR (tongue range of motion ratio).
  - Grade 1 function: > 80% TRMR
  - Grade 2 function: 50-80% TRMR (68% of the population is between 51-71%)
  - Grade 3 function: < 50
  - Grade 4 function: < 25

TRMR (tongue range of motion ratio) is compared to the patient's symptoms. Remember that symptoms are always the most important.

- For younger children, use the middle fingers to lift up the back of the tongue. Visually and tactilely note the resistance and restriction in the tissue.
- Lip band: The lip is lifted towards the nose. Must be able to move freely without tension in the tissue.
- Tip: If the tissue turns white, it is a sign of strong tension/restriction.
- PTT (posterior tongue ties). Can be difficult to diagnose.
  - Pull up the back of the tongue firmly with your middle fingers. The restriction will be noticeable under the mucosa.
  - Under the clip, the tight tongue tie will be visible when the mucosa is removed.
- Recommendation: Check all patients undergoing treatment for sleep apnea for a tight tongue tie. Tongue ties are the single most important factor in the development of OSA (obstructive sleep apnea).

**Treatment**

**First assessment**:

- 5 keys
  - Look at the symptoms (form: symptom history) to be filled in by the patient/ parent beforehand.
  - Listen to the patient/mother without interrupting (while going through the form).
  - Check the patient (clinical examination).
  - Inform about risks and benefits (and post-operative course).

- NOTE: This is always an offer of treatment. We should never guarantee an effect of the cut - but we hope for the best (as with any other treatment! Hubris - Nemesis).
- Before assessing the need for and treatment, OMFT training, chiropractic treatment, breastfeeding guidance etc. must be initiated.
- NOTE: It was previously believed that a medial diastema should be closed orthodontically before cutting the lip band - there is absolutely no evidence for this. However, there is now strong evidence to suggest that a cut of the lip band should be offered prior to orthodontic treatment, as in the vast majority of cases a cut of the lip band may be sufficient to close any diastema.
- **Laser** is recommended for cutting the lip and tongue tie - why? Because:
    - Highest precision.
    - Minimal pain impact.
    - Minimal to no bleeding - provides optimal overview of the surgical field during treatment -> avoids damage to vessels, nerves, salivary ducts and muscle tissue.
- NOTE: When cutting tongue and lip ties, ONLY connective tissue is cut, NOT MUSCLE tissue etc.
- **Pain coverage with**:
    - Children < 12 months: surface analgesia with EMLA (2.5% lido + 2.5% prilo)
    - Children 1-4 years: strong surface analgesia ointment (10% lido, 10% prilo, 4% tetracaine.
    - Older children + adults: local infiltration applied alone and right in the restrictive band, e.g. with lidocaine-adrenaline.
- **Equipment**:
    - Good overview - magnifying glasses and laser.
        - With the laser you can easily see what you are doing. Performed as a dissection. You quietly dissect yourself on the surface through the connective tissue. This avoids cutting muscles, vessels and nerves. We stick to the fascia alone - i.e. NO muscles, vessels or nerves ONLY connective tissue.
        - If scissors or culter are used instead of a laser, you cannot see what you are hitting.
    - Good light - preferably a headlamp.
    - Suction.

- Good for the little ones: SwaddleMe, KneeToKnee Lap Board, Neonatal Anesthesia donut.

**The procedure**

- Infants can be weighed just before the cut.
- Application of surface analgesia/infiltration. Wait for optimal effect.
- Hold the tongue up tightly with a middle finger on each side so that the restriction is clearly visible (remember to perform a straight pull on both sides).
- Using a laser, make tiny horizontal mesial and distal guided incisions (dissection). The movements are performed superficially - "sketching" - not deep in tissue.
    - For the tongue ligament: Start at the tongue ligament string in the middle of the submandibular duct.
    - For lip band: Start where the lip tape attaches to the alveolus. Pull up really tightly on the lip tape. Continue the dissection until there is free mobility of the lip.
    - A diamond-shaped opening of the tissue will slowly form. IMPORTANT that we do not cut a diamond - the diamond will open on its own by gently loosening the restrictive tissue.
- The mobility of the tongue is noted with your fingers along the way.
    - Check that there is equal mobility on both sides of the tongue.
- As the diamond opens, small incisions can be continued in the mesial and distal corners of the diamond.
- Be aware of blood vessels - stop before any vessel is being skinned.
- Be aware of stopping when muscle tissue is reached - seen as a fine "steak" colored tissue just below its fascia.
- Watch out for salivary ducts - pause along the way and look where you are.
- It is important that the cut is done completely and not stopped "halfway".
    - NOTE: Many tongue tie clips are not done properly and thus turn into posterior tongue ties (PTT).
- In the case of infants, the baby is put to breastfeed immediately afterwards.
    - The baby can then be weighed again - this way the milk intake can be clearly assessed.
    - Feel free to ask mom if it hurt.

        - NOTE: A few babies will find it more difficult to breastfeed immediately afterwards, as they need to relearn the correct breastfeeding technique - which is why a breastfeeding counselor etc. is just as important after the cut as before.
        - They may also start regurgitating more milk in the time immediately after the procedure because they are getting more milk.

**Follow-up care**

- Aftercare (= stretching the tissue)
    - A wound in the mouth will close very quickly, therefore an optimal treatment result is dependent on aftercare - where the tissue is gently stretched by massaging against the diamond so that the tissue remains supple and long instead of stiff and short scar tissue.
    - NOTE: 4 times a day is enough for aftercare. You do not need to wake up to perform aftercare.
- Infants:
    - Breastfeed immediately (bottle also okay).
    - Pain relief with paracetamol and ibuprofen (if > 6 months).
    - Skin-to-skin contact.
    - Soreness for 1-3 days.
    - Expect improvements to take up to 3 weeks, give phone number and call later.
    - 3 weeks, 4-6 times a day, 5-10 seconds of real stretching, apply it, lift so that the whole diamond is visible - firm but gentle pressure against the wound. Show and teach the parents before they leave the clinic.
- Children and adults:
    - 2 x dgl. for 3 weeks.
    - OMFT therapy - myofunctional training 2 x daily. or as prescribed.
- Call the patient in the evening to see how they are doing.
- Check after 1 week and preferably 1 month.
    - Here, the symptom history form is filled out again - and compared with before treatment.

- NOTE: The older the patient is - the longer it takes to break the old habits that have built up due to compensation for the tight bonds.

**TIP**

- If you want to start cutting lip and tongue ties:
    - Start with adults. Children are the hardest because of the cooperation.
    - Feel free to start with lip ties.
    - Don't start with a family member or friend (only after 50 cuts).
    - See everyone for checks.
    - ALWAYS work with a team of OMFT therapist, chiropractor, osteopath, lactation consultant etc.
    - It is important that the cut is performed adequately and not stopped "halfway".
        - NOTE: Many tongue tie clips are not performed properly and thus turn into posterior tongue ties (PTT).
    - When treating babies, it is important to:
        - They see a lactation consultant, chiropractor, osteopath before and after.
        - And that they perform aftercare (= stretching of the tissue).
    - Cheek bands:
        - Check for cheek bands as well, especially if you have trouble creating a "seal" when breastfeeding (i.e. the ability to create a vacuum).
        - This can be felt as tight tongue ties.
        - NOTE: Disadvantage - can lead to increased soreness and more areas to be stretched at aftercare during the post-operative course - so leave it up to the parents/patient.

**Read more**

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