

[IMAGE]

## **Dealing With a Tot With TOTS (Tethered Oral Tissues)**

By Claudia Anrig, DC

Tethered oral tissues (TOTS) can manifest as either a tongue tie (whereby the thin piece of skin under a baby's tongue restricts movement of the tongue) or with the upper lip restricted due to being anchored to the gum. This thin membrane of tissue should undergo cell death during embryonic development, but in some cases will fail to do so, creating a "tethered-like" cord of tissue. TOTS is a condition that often runs in families and is said to have a genetic component.

### **Beyond Breastfeeding Issues: Potential Health Consequences**

Research implicating tongue tie with difficulties in breastfeeding suggests a broad span; anywhere from 25-60 percent incidence of breastfeeding-associated difficulties such as: failure to thrive, maternal nipple damage, maternal breast pain, poor milk supply, difficulty latching and refusing the breast altogether. Some studies have shown that for every day of maternal pain during the first three weeks of breastfeeding, there is a 10-26 percent risk of stopping breastfeeding.

However, difficulties with breastfeeding alone are not the only concern. In one study, tongue tie was associated with displacement of the epiglottis and larynx. Infants with this disorder were known to have difficulty breathing. These infants' arterial oxygen percent saturation levels were measured during three different times: asleep, suckling and awake. Results showed that their SaO<sub>2</sub> was unstable and slightly low; symptoms similar to those observed in victims of sudden infant death syndrome (SIDS) before their death. Unstable or low SaO<sub>2</sub> levels also may lead to neurological and developmental issues in children.

In the case of an upper lip tie (ULT), the baby may not be able to obtain a proper latch or seal on the breast. A successful latch occurs when the baby is able to flare their upper lip and take both the areola and the nipple in their mouth. When a baby has an upper lip tie, they are unable to flare their top lip out effectively (like fish lips) and may only take the nipple into their mouth. This may lead to a poor seal and swallowing excessive amounts of air during feeding. The air in the baby's belly can then lead to symptoms of colic or reflux, and unnecessary medications may be prescribed.

Lip ties also can hold mother's milk on the front surface of the upper front teeth during nighttime at-will feeding, promoting dental decay. What's more, children with TOTS may have speech difficulties that require extensive speech therapy.

### **Common Symptoms Related to TOTS**

#### Infant

- Several unsuccessful attempts at nursing
- Colic, gassy, reflux
- Failure to gain weight / thrive
- Unsustained latch; calloused or blistered lips
- Sinus congestion, snoring

#### Mother

- Painful latch; cut or cracked areas
- Bleeding nipples
- Flattened, blanched or creased nipples
- Failure to bond with infant, leading to depression
- Plugged ducts, engorgement, mastitis or thrush

### **Why the Rise in TOTS: Is Folic Acid to Blame?**

One theory in relation to the rise in the number of detected cases of TOTS is the fortification of foods with folic acid. In 1998, folic acid was added to foods such as most enriched bread flours, cornmeal, pasta, rice and grains in the U.S. and Canada. The intent behind adding this synthetic B vitamin to foods was to help prevent neural tube defects (NTD) in babies.

Although adding folic acid to our food sources has reduced the number of NTDs, it also may have led to the rise in children being born with a particular genetic defect involving what is called the "MTHFR" gene and subsequent poor postnatal folate status. This particular gene is a key regulator of "methylation," one of the most important biochemical reactions in our body needed for healthy DNA function and overall health.

It is recommended that women take the natural, active form of folate, not folic acid, during pregnancy. Folate also is found in its natural form in dark-green, leafy vegetables.

### **How TOTS Affects Structure & Function**

TOTS is considered a "midline" defect, meaning it affects the center or core of the body. The tongue is anatomically attached to the bone and fascial structures of the head and torso. The tension caused by the tethered tissues can create long-lasting structural changes to the musculoskeletal system; especially in the neck, cranium and face. The changes in these regions can then lead to adaptive changes throughout the rest of the body and present as postural abnormalities or asymmetries.

In infants, these postural challenges can lead to difficulties in reaching various developmental milestones such as rolling over, creeping or crawling. Developmental milestones are necessary in order for a child to develop a healthy sensory-motor system. Proper sensory input is essential for academic, social, emotional, and motor-skill learning and development.

If there is abnormal structure of any spinal regions, this critical sensory information may not make it to key areas of the brain and a child may develop a "disorganized" sensory-motor system. A child may later on go on to receive the diagnosis of "sensory processing disorder" and have trouble with attention, learning and/or behavior.

TOTS also can affect the subtle "pumping" movement of the cranial bones. This action is necessary in order for the cerebral spinal fluid, the fluid that protects the brain and spinal cord, to move toxins away from the brain. The cerebral spinal fluid is like a sewer system that eliminates waste, but when the cranial pumping motion is inhibited, toxins can affect brain function and development.

### **Intervention Options**

There are various degrees of lip and tongue ties, and various opinions on the necessity for intervention. It is important to understand that a child does not need to display feeding or speech issues for there to be a problem. Dentists, pediatricians, and ear, nose and throat doctors (ENTs) are the primary professionals who perform revision procedures.

There are two methods for revisions: one uses a laser and one uses scissors. With either option, parents should interview the practitioner on their method and success rate for non-reattachment post-procedure.

It is critical that when seeking an opinion, the parent does research within their community to find a practitioner well-versed in the different degrees of tongue / lip ties; and that they also understand the structural implications of tethered oral tissues. Keep in mind that the health care practitioner should be well-versed in post-procedure wound care and the need for stretching exercises, cranial-sacral and chiropractic care in order to prevent reattachment of the tissues.

### **Why Chiropractic & Cranial-Sacral Care Are Important**

Due to the structural changes associated with TOTS, it is imperative that pre- and post-revision care include chiropractic spinal adjustments and cranial-sacral therapy. The cervical spine has a vast amount of neurological sensory input projecting to the brain. If there are structural stressors on the spine or cranium, this will lead to poor neurological communication from the body to the brain, which will alter proper neurological function and development. Specific spinal adjustments can restore proper musculoskeletal structure, which in turn will restore neurological function.

### *Resources*

- Online and social media support: International Affiliation of Tongue Tie Professionals ([www.tonguetieprofessionals.org](http://www.tonguetieprofessionals.org)); Ankyloglossia Bodyworkers and Tongue Tie Baby Support Group (both on Facebook).
- Prevalence, diagnosis and treatment of ankyloglossia. *Can Fam Physician*, 2007 Jun;53(6):1027-1033.
- Ankyloglossia with deviation of the epiglottis and larynx. *Annals Otology, Rhinology & Laryngology*, 1991;153(Supplement):3-20.
- Has enhanced folate status during pregnancy altered natural selection and possibly autism prevalence? A closer look at a possible link. *Medical Hypotheses*, 2008 Sep;71(3):406-410.
- Olivi G, Signore A, Olivi M, Genovese MD. Lingual Frenectomy: functional evaluation and new therapeutical approach. University of Genoa Department of Surgical Science.

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