

Small but Mighty Muscle

Plays a Key Role in Full-Body Health

Ithink it would surprise most people to learn how significant a role the tongue can play in one's over-all health," observes Dr. Charles Ferzli, of the TMJ and Sleep Therapy Centre in Cary. "But the fact is, that small muscle can have an enormous impact."

In his practice, Dr. Ferzli often focuses on how movement of the jaw and tongue can trigger a cascading series of whole-body problems. "Unfortunately," he says, "problems related to the tongue don't get much attention. No one teaches us where the tongue should be when we develop. No one teaches us we should be chewing on both sides at the same time to strengthen the musculature of the jaw and face symmetrically. But these things matter.

"The tongue is an extremely strong and important muscle," he explains. "Consider the fact that it takes less than two grams of force to move a tooth; and the tongue can generate 500 grams of force. So that small muscle has a lot of power in shaping the space in the mouth and affecting the positioning of teeth."

TONGUE-TIE

Perhaps the best examples of how a problem with the tongue can lead to multiple health issues are cases of tongue-tie, says Dr. Ferzli. "Tongue-tie occurs when a small fold of tissue prevents the tongue from having the proper range of motion; it can't extend up or forward because it's tied to the floor of the mouth.

"This starts as a very small problem, and one that can be easily remedied initially—doctors can identify and release tongue-tie when an infant is born with a simple surgical procedure. But if the issue is missed—and it frequently is—it can have wide-ranging and very serious consequences.

"Because of the tongue-tie, the tongue will more likely fall in the airway, creating sleep problems. As a result, the patient is more likely to become a mouth breather, which can cause growth issues. The lower and upper jaws become narrower as the child grows, resulting in more forward head posture, more pain, and more



Dr. Ferzli

sleep and upper respiratory problems. Speech problems often result and chronic ailments—such as bronchitis, asthma and digestive problems—can also develop."

Problems don't stop there. "It's not uncommon," he notes, "for patients who have tongue-tie to complain of neck pain. That's because in order to swallow—2,000 times a day, on average—the tied tongue has to recruit more muscles from the neck. The result is significant neck pain."

"And all these problems stem from a tiny piece of tissue that restricts the movement of the tongue!"

TREATING TONGUE-TIE

"Ideally, instances of tongue-tie are identified in infancy and addressed immediately," notes Dr. Ferzli. "But for those who are dealing with multiple problems resulting from untreated tongue-tie, healing is a more complex problem."

"Treatment involves much more than correcting the problem surgically," he says. "We need to understand the severity of the tongue-tie and its impact on the patient's

development and health. In older patients, treating tongue-tie means treating many other problems as well. These can include sleep issues, speech problems, jaw and neck pain, even digestive problems."

An important part of Dr. Ferzli's treatment program are myofunctional exercises (see box), and he often works with speech and functional therapists who teach children how to position their tongues to strengthen the airway muscles. "These are valuable exercises, even for those who don't have tongue-tie," says Dr. Ferzli, "because by toning the airway muscles, they help to achieve better quality of sleep."

A recent patient of Dr. Ferzli's illustrates the multi-faceted treatment required for many tongue-tie cases. This 15-year-old boy had a severe case of tongue-tie—resulting in jaw pain, crowded arches in his mouth, and many other conditions. "For that reason," says Dr. Ferzli, "fixing the tongue-tie surgically is only the starting point on his healing journey."

"To begin, we have the patient come in for four weeks to do some oral myofunctional therapy exercises to tone the tongue and airway muscles. So, when we do the tongue-tie release surgery, the patient is able to keep the tongue on the roof of the mouth for a period of time. And after the surgery, we have them follow up for another four weeks while they're healing, so the tissues don't reattach. We want to make sure they keep doing their exercises, so their tongue has better range of motion, and they can heal with a good range of motion."

"This patient may also need maxillary expansion to correct a crossbite and crowding of the teeth," explains Dr. Ferzli. "And there may be some nasal breathing issues to address. Because when the tongue doesn't fit on the roof of the mouth, the

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nasal passages don't develop properly. So, I will also refer him to an ear, nose, and throat (ENT) specialist to fix his nasal passages. And he may also need a nighttime oral appliance to promote proper nasal breathing, which is critical to healthy sleep."

TONGUE MOVEMENT AND SLEEP

"A significant concern related to tongue-tie," says Dr. Ferzli, "is its impact on sleep—and that can translate into many, many systemic health problems.

"The tongue and breathing are connected to jaw position and movement," he explains, "both of which influence the type and quality of sleep. At rest, the tongue should sit on the roof of the mouth. But if it falls into the airway, it can make it smaller or block it. People with tongue-tie face this problem frequently, since the tongue stays on the floor of the mouth.

"This can cause a variety of sleep interruptions. For one, if nasal tissue swells up and people can't breathe through the nose, the airway interruption wakes them. Or they could be waking because they don't have enough oxygen going to the cells in their body, or they're clenching their teeth. Tongue position plays a role in all these instances."

There are many other factors that compound to interfere with healthy sleep patterns, notes Dr. Ferzli. "Excess cortisol—the 'fight or flight' stress hormone—can play a role; and, of course, physical pain affects sleep quality. These and other interruptions interfere with the restorative power of sleep across the different stages." **■**

MYOFUNCTIONAL THERAPY

Myofunctional therapy," explains Dr. Ferzli, "is a program of specific exercises that target the facial muscles used to chew and swallow, toning the airway muscles, and helping to get better quality sleep and less snoring. It may effectively manage symptoms of sleep apnea, poor digestion, headaches, TMJ, and periodontal disease."

Myofunctional therapy, he explains, "is non-invasive, and has no major risks. And it is extremely valuable in treating problems resulting from tongue-tie."

Exercises used to strengthen the tongue include: pushing the tongue to the roof of the mouth; touching the nose with the tip of the tongue; rolling the tongue; and pushing the tongue left and right.

For more information, contact:

Charles Ferzli, DDS, FAACP, DABCP, DABCDMS, DABDSM
TMJ & SLEEP THERAPY CENTRE
OF RALEIGH-DURHAM
1150 NW Maynard Road, Suite 140
Cary, NC 27513
Telephone: (919) 323-4242
RaleighTMJandSleep@gmail.com
www.RaleighTMJandSleep.com