PARENT CONCERNS – A 3 YEAR OLD CHILD WITH TONGUE THRUSTING AND AN OPEN BITE

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ABSTRACT: A parent’s questions about a 3 year old with tongue thrusting and an anterior open bite are responded to.

PARENT QUESTIONS: Our 3 year old son had an initial dental evaluation by our family dentist. He told us that our son has an anterior open bite with a deviant swallow, tongue thrust and lisp. Our son also sucks his thumb. Should we be concerned?

ANSWER: I am disappointed that the dentist has labeled your 3 year old child with various negative-sounding terms. A dentist, with good intentions, may get carried away by identifying and labeling some behaviors as abnormal that are quite normal for this age group. What the dentist reports are behaviors that are not cause for immediate concern or action. While I appreciate that the dentist wanted to be thorough, there is no need to spring into action at this time with orofacial myofunctional therapy or with concerns or procedures, such as orthodontic treatment.

SPEECH AND OTHER ORAL FUNCTIONS: Here are some details regarding oral functions: At age three, the predominant tongue function is still in the horizontal plane. All 3 year olds can easily protrude the tongue. Vertical and lateral movements of the tongue, however, are often not well controlled. Substitution of "th" for "s" (or lisping) is a common example of this, and is quite normal at his age level. I would not recommend having your child seen by a speech-language pathologist or orofacial myologist for therapy at this age, as this could do more harm than good in calling attention to your son’s tongue placement. If, however, you feel that your child is not developing language skills appropriately, the consultative skills of a speech-language pathologist would be comforting and helpful at this time. Since you have not noted any issues with your son's speech, it is also likely that he has no language delays since you apparently understand what he is saying and he is communicating. If your son can correct his pronunciations when stimulated with a verbal cue, this is an excellent sign that he will be able to achieve normal speech along the developmental speech table. Many speech sounds and blended sounds in words (such as “snow”, “swing”, “break”) are not expected to be mastered until around age 5.

At age 3, thumb sucking is also a normal behavior. This will be discussed later in this reply to your concerns.
TONGUE THRUSTING AND THE “DEVIAN T” SWALLOW: Let's discuss the terms “tongue thrusting” and "deviant" swallowing. I dislike the label of "deviant swallow" that the dentist used because it is not an accurate description of anything except in rare instances when a person aspirates air or food during a swallow. There is nothing deviant about a swallow from a physiological standpoint if food gets down into the esophagus and stomach rather than being aspirated into the lungs. Some continue to use this term rather than the more widely accepted term "tongue thrust swallow", which describes the initiation phase of a swallow as involving a forward protrusion of the tongue tip between the teeth rather than an elevation of the tongue tip.

Tongue thrusting itself can occur in speaking and/or swallowing. Many dentists fear and claim, incorrectly, that thrusting the tongue against or between the anterior (front) teeth during speaking or swallowing will move or push the teeth forward and create either incisor protrusion or an open bite at the front of the mouth. This is an inaccurate view of tongue thrusting, and what is claimed does not occur as a result of tongue thrusting. Actually, it is the rest posture of the tongue that is the link between the tongue and changes in the position of teeth.

FORWARD, INTERDENTAL REST POSTURE OF THE TONGUE: A tongue thrust is often accompanied by a forward, interdental rest posture of the tongue. When the tongue rests forward, the lower jaw is hinged open slightly and the presence of a resting tongue between the front teeth can create an open bite over time. To do so, the front teeth are inhibited from full eruption while the back teeth over-erupt because the mouth is hinged open for hours at a time beyond the normal range. This process is known as "differential eruption". Clinical research has demonstrated that the forward resting posture of the tongue is linked to dental variations at the front of the mouth such as open bite, while a tongue thrust may only play a minor or contributory role. Overall, the tongue is viewed as an “adaptive” structure that seeks spaces already open and tends to rest there. Many in dentistry continue to presume an improper cause and effect between thrusting and tooth position such as open bite or incisor protrusion. The bottom line is: don't worry about the tongue thrust at age three. By the time that the adult front teeth (incisors) erupt (age 6 onward) tongue thrusting may be of some concern, although some children spontaneously outgrow a thrust and even an anterior open bite.

When a tongue thrust and a forward rest position of the tongue at rest are seen, they should serve as a clue to look at the posterior airway. That is, what you see happening at the front of
the mouth should signal a need to evaluate what is happening at the back of the mouth and beyond, especially with the tonsils and adenoids. The reason for this is that unresolved airway issues and allergic rhinitis are the primary reasons why tongue thrusting develops. As well, spaces created anteriorly encourage thrusting and a forward rest posture as the tongue assumes an opportunistic role.

**TONSILS AND ADENOIDS:** Here are some details about tonsils and adenoids: In a child of age 3, the tonsils and adenoids are already expected to be large. The location of tonsils is at the gateway between the oral cavity and the back of the throat (the oropharynx). Large tonsils can diminish the size of the opening into the oropharynx (the oral isthmus between the tonsils) and can also compete with the base of the tongue for space, causing the tongue to rest or move forward to maintain the airway. With large tonsils, the tongue may thrust forward in the beginning part of the swallow to get food past the small space between the tonsils (the oral isthmus), that is, as food is passed between large tonsils, the tongue moves forward to enlarge the airway and facilitate the swallow. In this situation, with a small airway due to large tonsils and/or adenoids, the last thing that should be done is to try to retrain the tongue out of a tongue thrust.

The adenoids are a mass of lymphoid tissue attached to the back and top of the nasopharynx. You will not be able to visualize them by looking in your son's mouth since they are hidden behind and above the soft palate. In some children, the adenoids are so large that they obstruct or partially obstruct the back entrance into the nose. As a result, a child is forced to breathe through the mouth.

Pediatricians are well equipped to follow the development of the tonsils and adenoids. Just because tonsils and/or adenoids are large does not signal the need for their removal. Pediatricians are appropriately conservative about surgically removing tonsils and adenoids. There is growing evidence that these lymphoid tissue masses contribute to the body's immunological development, experience and responses, since their location can act as a filtering thermostat for what is being introduced into the throat, nose and lungs during breathing. The importance of tonsils and adenoids in contributing to the development of the body’s immunologic development is most active between ages 3 and 6 years.

The tonsils and adenoids have a growth cycle. They are expected to be large by age three and remain large until around age 12, when these lymphoid tissue masses then go through a
process of self-reduction in size called involution or atrophy of tonsils and adenoids. Without surgery, many individuals have little or no tonsils and adenoids remaining by age 20 simply as a normal process of the growth cycle which involves tissue proliferation and then involution. Where there is a history of tonsillitis or adenitis in childhood, the growth and involution cycle for tonsils and adenoids may not conform to the norm.

**THUMB SUCKING:** Your son's thumb sucking habit may be linked to his developing open bite if the thumb is in his mouth for hours per day. Nonetheless, I would not recommend trying to get the thumb out of his mouth at age 3. It provides comfort and tastes good. Actually, during thumb sucking, the body releases endorphins into his system, resulting in a pleasurable experience; thus, there is a biochemical encouragement for the continuation of this habit. Dentists do not worry about thumb sucking until around age 6. Below age 6, most in dentistry would accept the development of an open bite rather than recommend therapy to cease the sucking habit. However, myofunctional clinicians would begin working to eliminate a sucking habit at age 5 years because youngsters who go to school with a sucking habit can experience teasing, learning and socialization problems. But a 3 year old, however, the thumb habit can be ignored, and also the thrusting and open bite for several years. For the near future, as long as your son is sucking his thumb, the tongue thrusting will not be expected to spontaneously resolve.

**APPLIANCES TO BREAK ORAL HABITS:** Here is some advice that should serve you well: If anyone in dentistry ever recommends inserting an appliance into your child's mouth for thumbsucking or tongue thrusting, please decline the invitation. In my opinion, there is no place or need for appliances in habit treatment, and I am prepared to vigorously argue this opinion with any in dentistry who may disagree. Behavioral (non-invasive and non-punitive) approaches to habit cessation work well, as provided by orofacial myologists. The problem with oral habit appliances is not only that they are punitive but also, and just as important, any and all of the appliances tend to hinge the lower jaw open. This encourages continued eruption of back upper teeth through differential eruption. The result is an increase in an anterior open bite. Appliances can create an even larger problem by their use, rather than serving to reduce or eliminate a habit pattern. Also, children are quite capable of bypassing the appliance with the tongue under the prongs/rakes/spikes, etc., so the appliances seldom work effectively and as intended. Those using dental appliances for oral habits also ignore the fact that it is the forward rest posture of the tongue that is the link with dental changes rather than the thrusting, which is the intended object of appliance wear.