

# **That Little Thumb Can Do an Awful Amount of Damage! A Parents Guide to Childhood Thumbsucking Issues and Tongue Thrust Behavior.**

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The mere thought of their child's thumb-sucking behavior brings frustration and anxiety to many parents. Most parents know that thumbsucking is a common occurrence during childhood, but at what point should acceptance become concern? What are the complications that arise if this non-nutritive sucking behavior continues into the later childhood years? What methods can be utilized to help children stop in a loving, positive, and supportive way? What if parents can't do it alone? Who can parents and children turn to for help when the going gets rough? This article aims to address these very topics.

## **Why Children Suck Their Thumbs**

Children are conditioned and learn at a very early age that they must suck to survive. Many children begin thumbsucking in utero. Children are born with an instinctive suckling reflex. As you stroke your little baby's chin, you can see that instinctive response immediately. Minutes after my daughter was born, she knew exactly what to do for nourishment. She didn't have to be taught, (although, I needed to learn how to help!). It was pure instinct. Babies begin to associate suckling with Mommy, warmth, love, togetherness, and a myriad of other wonderful feelings. Sucking actually produces endorphins, a natural-occurring chemical in our brain, which produces pleasure. Endorphins are so powerful, they actually bind to "opiate-type" receptor sites in the brain. With all these early positive associations, and pleasurable experiences relating to the sucking process, what baby wouldn't love sucking? Babies soon learn that they can transfer this sucking action to other items, namely a convenient finger, toe, or thumb, and receive those same positive and pleasurable conditioned sensations. Children find finger sucking can stave off boredom and they often use this as a means of soothing distress, illness, or fatigue. Soon sucking becomes a habit. Thumbsucking past age 4 is just that, merely a habit. No more. No less.

## **When Does Acceptance Become Concern?**

Personally, I begin to become concerned at age 4-5. Between ages 4 and prior to the eruption of the permanent teeth, much of the damage that occurs to the palatal structure can be reversed. Prolonged and vigorous sucking can act as a deterrent to the normal growth and development of skeletal, facial, nasal cavity, tooth alignment, lip structure, tooth eruption, palate, finger growth, speech,

breathing and swallowing functions. That little thumb can do an awful amount of damage that many parents are not aware of.

The more vigorous the sucking habit and the more fingers sucked, the greater the degree of damage likely. Two-finger sucking is considered the most damaging, and a thumbsucker who hooks the index finger above the nose will develop finger, nasal, and palatal damage simultaneously. The longer the sucking habit continues, the greater the chance of the negative effects of finger sucking (especially palatal narrowing), becoming resistant to spontaneous reversal.

As the mouth is propped open from the front teeth contacting a finger, the back teeth may begin to erupt excessively to fill that open space in back forcing the bite to become permanently open.

In addition, when a child keeps a finger in the mouth, the tongue is forced into a downward and forward position. The roof of the mouth, the hard palate, depends on the tongue resting and molding its shape for proper width and development. When the palate does not have a tongue resting within it during the early formative years, it is at risk for narrowed development. In addition, the muscles utilized in a normal adult swallow, which encourage the tongue to lift to the palate for the swallow, are weakened and fail to engage at the proper time. Additional forward and downward movement of the tongue occurs against teeth and beyond teeth influencing the child's palate and facial development further. In addition, the mere suction and pressure of the sucking act can create pressure against the upper arch forming a v-shaped arch, instead of a nice round arch, narrowing the palate even further. What are the effects of a narrow palate?

First that comes to mind, is that many teeth will not be able to erupt fully, on schedule, or straight, due to limited space in which to contain them. In addition, once the bite has been affected through crowded or abnormally erupted teeth, the lower jaw or teeth may shift as a result, to attempt to find a comfortable biting surface, forming an overlap situation on the back teeth, often referred to as a crossbite. Without enough room for the tongue to fit in during rest and swallows, the tongue, with already altered muscular patterns, will be perpetually forced into a situation where it has nowhere to go but out. A tongue which habitually thrusts forward, is termed a "tongue thrust". The entire facial muscular complex can often be affected, as children attempt to seal their mouth from the extruding tongue to avoid an embarrassing moment of food or saliva falling forward from the force of the tongue. Muscles are said to exhibit an "imbalance" situation, i.e., the muscles we normally use for facial expression are being called upon to do the work of chewing and swallowing, in a compensatory action.

Normally, infants use these same patterns of chewing and swallowing up until ages 4-6, and then a transition begins to take place, and proper patterns of swallowing develop as part of the maturation process. However, in over 80% of

children who continue thumbsucking beyond the early years, a proper swallow transition does not occur, and the swallow pattern remains infantile in nature. Children who develop these problems are said to have "Orofacial Muscular Imbalances".

Development of other hard structures may also become altered. In these children, the roof of the mouth grows vertically, instead of horizontally, narrows, and becomes vaulted, often taking on the shape of the finger. The nasal cavity floor is also associated with the growth of the roof of the mouth. If the palate is narrow, the nasal cavity and sinus may also develop with a narrow and shallow anatomy. In addition, speech can be affected because the tongue has difficulty raising to the palate, or with tongue tip placement, due to structural and muscular changes, to articulate various sounds, especially n, t, d, s, l, z, and ch. R, formed with the back of the tongue raised, may also be problematic. Incompetent lips may affect letters p, b, and m.

Often times, the area where the finger sits in the mouth has provided a nice gaping open area for the tongue to thrust out of during rest and swallow function. The more the tongue continues to exert pressure by resting against teeth, or through them, the more at risk teeth are to continued movement. If this tongue thrust issue is not addressed during orthodontic treatment, orthodontic movement of teeth may be slowed, as the tongue pushes forward, exerting pressure in a continuous slow manner in the opposite direction the orthodontist is attempting to move the teeth into. When the orthodontia is completed, continued movement of the teeth may occur as a result of the tongue continuing to exert pressure at rest and swallows against those beautifully straightened teeth. This can lessen the possibility of a beautifully maintained and retained orthodontic correction.

Lips may assume a flaccid appearance, with little muscle tone, when at rest and not actively sucking. The lips are unable to remain together easily. Lips that remain closed at rest act as a natural retainer to the front teeth, and help keep them from drifting forward in the mouth. Average normal lip strength is approx 4-6 lbs. of pressure. This is measured using a spring tension gauge. Most of the children with orofacial myofunctional disorders, have lip strengths of only 1-2 1/2 lbs. of pressure. Luckily, this is easily reversed. I personally use a custom molded exercise device to work with the children on improving lip strength, and more importantly, closure. I am usually able to increase lip strength significantly in a few weeks, and improve lip closure after the sucking behavior has been discontinued.

## **Other Factors in the Development of the Tongue Thrust**

The second most common cause of orofacial muscular disorders is mouthbreathing. Children who breathe habitually through the mouth, due to allergies, tonsils, adenoids, or other airway difficulties also tend to hold and rest the tongue and jaw downward, yielding similar narrow palates, resultant bite changes, tongue thrust behavior, and lips apart posture. In fact, these disorders are on the increase currently for two reasons. Number one is sheer demographics-the large percentage of the population falling into this age group where we begin to detect these problems, and two, increased mouthbreathing issues from an increase in the incidence of allergies in our society. A handful of dentists I have spoken with perceive there may be a less aggressive nature of treatment of tonsil and adenoid issues as compared with the baby boomer generation in their own personal patient populations, noting an increased incidence of children with mouthbreathing as a result. In addition, hereditary factors, neurological problems, short tissue attachment under the tongue (frenum), and an abnormally large tongue can also be labeled causative factors contributing to the development of tongue thrust swallow behavior, and orofacial myofunctional disorders.

## **How Common is Thumbsucking?**

In preschoolers, it is believed that 1/3 to 1/2 of 3-5 year olds suck fingers and thumbs when tired, although there is a decline in overall time of fingers in the mouth. Some quit sucking entirely once they begin preschool and peer pressure kicks in. However, even though most daytime sucking decreases during this time period, often nighttime sucking continues. Many preschoolers will return home from a finger-free day, snuggle up to a blankie, t.v. or other familiar object in a comfortable spot, and automatically, the thumb goes in.

Approx. 13% of children who are entering kindergarten suck a finger, and in 7-11 year olds, approx 6%, with the most finger sucking occurring at night. Many children begin other oral habits as a substitute, however, such as pen chewing, a more socially acceptable form of oral stimulation than a thumb. (These other oral habits may also be harmful to the oral structure, and are less commonly addressed.) If thumbsucking continues much past this age group, often orthodontic and orofacial muscular therapy are not enough to help these children. In addition, surgical intervention may become necessary to address jaw discrepancies.

## **What NOW?!**

By now, you've probably concluded that a child who continues finger or thumb sucking activity beyond age 5 is not a great idea! However, how do I help my child to stop without driving us all crazy? Most parents have attempted a variety of techniques, which have failed prior to their child being seen in my office.

Parents and children alike find the constant nagging frustrating at best, and the parent-child issues faced during this period of struggle exasperating. There is help available.

## **Methods of Professional Care**

There are currently 2 methods commonly employed to address non-nutritive sucking behavior and tongue thrust. The first is Appliance therapy, and the second is Orofacial Myology Therapy.

### **1. Appliance Therapy.**

For this form of therapy, a General, Pediatric Dentist, or Orthodontist is consulted. A metal appliance is bonded directly to the teeth, which house various extensions. These extensions act as a deterrent to placing a thumb into the mouth, or conditioning a tongue to position forward. They cannot be used successfully in all types of tongue thrusts, and with all patients.

### **2. Digit Sucking Habit Elimination Therapy Using Behavior Modifications**

For this form of therapy, specialists such as myself provide counseling to children and families on thumbsucking issues. O.M.'s are licensed professionals in the medical, dental, or speech communities that receive specialized training and are expected to complete an internship program and testing to qualify for certified status in the profession. O.M.'s are overseen by the International Assn. Of Orofacial Myology, an association dedicated to quality education and training, assuring standards of excellence in care. Their website is: [www.iaom.org](http://www.iaom.org) Children are treated with respect and given encouragement, love, and support in their desire to stop their sucking habit. Positive reinforcement techniques and parental participation are instrumental to success. One on one, orofacial myologists help plan rewards for the children, act as a resource person for parents, and provide daily contact to the children, monitoring success and offering encouragement. Nighttime sucking issues are addressed with gentle "proprioceptive" (thought-stimulating/physical) reminders that are geared for that particular child on an individual basis (finger splints, custom gloves, etc). Most parents state they have tried many of these things before with no success, yet the therapy works. A special relationship of support and guidance from an outside source that attains a 3<sup>rd</sup> party intervention status is often the reason for such a positive outcome. Most patients with no psychological problems will overcome their finger habit after the first visit! The key is that THE CHILD MUST WANT TO STOP!

If an orofacial muscular imbalance/retained infantile swallow/tongue thrust is detected during visits to the office, muscular therapy sessions can be initiated once the thumb habit is under control, or if the tongue thrust is allergy or airway related, a properly maintained airway is established. If your orthodontist has suggested tongue thrust therapy for your child, orthodontic visits are coordinated to work together with therapy for the best possible comprehensive outcome. This therapy consists of various individualized exercises designed to retrain, improve, and correct muscle pattern usage (I often refer to it as physical therapy for the mouth) to a more harmonious form, and address open lips and mouth posture. (Lips should not be apart at rest, and this is a big tip-off that a problem exists.) Again, this therapy is not for everyone. It requires active participation on the part of the child. In a cooperative patient, therapy is proven in the literature to be over 83% effective in altering long-term swallowing behavior.

By discussing both options with your orthodontist, the correct method of addressing your child's orofacial myofunctional disorder can be determined.

### **Why is Treatment Necessary?**

A tongue thrust which is not corrected can often threaten the stability of any long term orthodontic correction. A tongue which exerts steady constant pressure on teeth during swallows and rest, or lips that do not seal with a jaw that postures habitually open, will not readily provide the proper environment functionally to best retain recently moved teeth in their new position. In addition, orthodontia in progress will take longer, as the orthodontist battles the tongue posturing itself and exerting continuous pressure in the opposite direction the teeth are attempting to be moved. A tongue thrust which has not been corrected during orthodontia is believed by many researchers to be the number one cause of orthodontic relapse in retained patients. Frequently, as this lowered postured jaw and tongue continues during adulthood, the muscles which support the TMJ (jaw joint), can become easily irritated. The normal position of the jaw should be elevated, with a gentle 1-2 mm. of open space in between the two arches, and the tongue resting up in the palate. Years of straining the musculature and joint downward from incorrect posturing of the tongue can take it's toll, possibly contributing to TMJ discomfort. Do this simple test yourself. Place your tongue on the floor of your mouth and see what happens with your jaw. Down and forward it goes. Twenty years of this - Ouch!

## **Suggestions For Parents Of Thumbsuckers Who Desire to Work on Quitting at Home**

1. If your child has a favorite chair or place they like to suck their thumb, put a "TV chair" near the TV instead. Move the place they normally watch TV.
2. Be aware your child may have a favorite toy or blanket they like to suck with, and move it to a place where your child can see it, but not have it to suck with.
3. When you do not see your child with their thumb in their mouth, tell them how pleased you are about it! Reward their efforts with positive reinforcement, kind words, and even surprises.
4. Think of things you can do together instead of sucking (remember, many children suck out of boredom), and do them. Keep a "busy box" of manipulatives nearby which will keep little fingers busy and out of the mouth such as Play dough, Koosh balls, Silly Putty, Legos, crayons and markers, books, stress balls, lanyards, beads, etc. Bring them in the car and place them by the T.V.
5. Limit T.V. usage, if this is a trigger for your child's sucking activity. Suggest a bike ride, computer game, or talking to a friend on the phone instead.
6. Never hesitate to consult a professional if finger sucking persists past age 4 1/2 - 5.
7. If a pacifier is a problem, don't promptly withdraw it's usage. Gradually wean down the daytime behavior, ending with weaning of the nighttime habit. Prompt, sudden pacifier withdrawal may promote the usage of a convenient thumb instead.
8. Before the age of 5, children are seldom ready maturity-wise to understand the necessity of why a thumb habit should be curbed, and therefore, it is best not to make it an issue until they are truly ready. Otherwise, they may resort to more continuous sucking as they become frustrated in their attempts to stop, seeking even more comfort from a convenient thumb, engraining the finger habit even further.
9. If your child over 5 expresses an interest in stopping, encourage this, utilizing the services of professionals such as orofacial myologists, or dental specialists, as needed, and depending on the method of therapy you wish to pursue.

## **Signs and Symptoms to Look For to Screen for an Orofacial Myofunctional Disorder:**

Habitual mouth breathing

Lips apart at rest or during swallows

Tongue visibly forward during eating or at rest

Facial smirk or grimace during a swallow, or using a lower lip squeeze to seal off the mouth

Open spaces where teeth should be in which a tongue comes through during a swallow or at rest

A tongue which comes forward into a cup when you take a drink

Golf ball appearance to the chin when swallowing

Washing food down with copious amounts of water

Speech difficulties

Messy eating, excessive drooling, and crumbs that frequent the corners of the mouth

Loose, flaccid lip tone, or teeth that are visible in the presence of an arched upper lip

Improperly chewed food yielding stomach pains and gas frequently

Excessive elongated facial growth

A head which seems to bob forward when a swallow completes

## **Conclusion**

I have been so fortunate to be part of this entire process. There is nothing more joyful than seeing the positive changes that occur from working with these children, as their little mouths change, grow and develop. The best rewards are the smiles and special friendships that result. I am so thankful for the opportunity to work with so many wonderful parents and children, and for all they have taught me, and for all the medical and dental professionals who have been instrumental in recognizing the need for this treatment, and insuring that these children get the care that they need.