Just a lisp?!?

Orofacial Myofunctional Disorder as a Barrier to Learning

Verena Prinsloo

“Oro” from latīn ‘oral’ for mouth, “faciāl” referring to the face, “Myo” from the greek pārticlē ‘my-’ for muscle: the term “orofaciāl myofunctional disorder” - in the following referred to as OMD - compiles all symptoms related to an imbalance of the muscular system of the face as well as in- and outside the mouth.

The appearance of a person with an OMD is characterised by a low muscle tone in lips and cheeks. Breathing through the open mouth is preferred, the lips are loosely open. The tongue lies flat in the mouth against or between the teeth (picture). In most cases, the person with an OMD shows speech distortion, particularly a frontal lisp.

There are several consequences that may occur due to the preferred oral breathing or the chronic open mouth positioning:

- The sense of smell is underdeveloped.
- The nose has an important function for the protection of our lungs: The nasal hairs serve as filters for the air that is inhaled. The incoming breath is warmed and enriched with moisture on its way down to the lungs. Therefore people who inhale constantly through the open mouth are more prone to lung infections.
- The nasal inhalation requires a deeper, abdominal breathing, whereas oral inhalation is a flat form of breathing. By oral inhalation one cannot take in the equal amount of oxygen than a nasal breather can. During the night, the oral breathing might even be accompanied by snoring should the velum also be affected by the muscular weakness. This creates a condition of hypoxia and reduces the recreational effect of sleep. The child experiences enduring tiredness and struggles to maintain concentration.
- Function and form of the human anatomy are interdependent, which means if the function of the anatomical structure is not sufficiently made use of, the form of the organ will not develop in full. Due to the oral breathing, the back bone of the nose is not shaped out completely, leaving a flat nose and a flattened nasolabial fold. Due to the open mouth, one may find an undefined lip red or even a shortening of the marginal fibres of the upper lip.
- The air streaming in dries out the lips and mouth. Children are likely to develop the habit of licking lips, usually even beyond the lips. This causes skin irritation and redness around the lips.

The tongue lying flat against or between the teeth indicates that due to the low muscle tone of the tongue, the tongue cannot elevate its tip to rest at the papilla inscissiva (spot on the hard palate behind the incisors). This is the physiological resting posture of the tongue. If this place cannot be reached by the tongue or the tip of the tongue cannot be elevated towards that point without compensation by surrounding muscle groups a number of dysfunctions can be expected:

- The papilla inscissiva is the beginning point of the act of swallowing. From there, the middle of the tongue is pulled up against the hard palate to transport the bolus towards the throat. This physiological movement of the tongue forms out the shape of the hard palate. A tongue which cannot perform the elevation leaves the hard palate unformed which results in a so called gothic palate. In this case the middle of the hard palate forms a high triangular shape which destabilizes the structure of the scull base. This can further on lead to the cheek bones lowering which then again drags the eye lids down. The children often display poor mimics and are therefore falsely interpreted as tired, bored or even stupid.

1 The term OMD also entails the opposite, the increased or even spastic muscle tone. The symptoms described in the article are mostly applicable to both the cases of increased and decreased muscle tone.
Instead of elevating the tongue against the hard palate, the tongue is pushing forward during the process of swallowing. This is called tongue thrust (picture). This constant and massive pressure by the tongue against the teeth, a semi-stable structure, leads to dental abnormalities and malocclusion, such as overjet and open bite. Accordingly, an orthodontic treatment will not be of permanent success without a successful training of the orofacial muscle function including a training of the correct act of swallowing.

Children showing an OMD are prone to decay of teeth, because only if the child swallows with closed lips can it make use of the natural cleaning system that is happening while we suck saliva through the rows of teeth. Due to the weak muscle tone of the lips the child cannot build up the intra-oral pressure which is necessary for this procedure. In addition to this, these children usually prefer to chew their sweets instead of sucking them, thus adding another risk factor for their dental health.

OMD goes with a hyposensitivity in the intra- and extra-oral area. The child does not show irritation by too much saliva inside the mouth, food bits around the mouth, drips on the chin and so on. Accordingly, the swallowing frequency is low, the children often show saliva on the lower lip, “wet speech” and a messy way of eating.

The tongue appears clumsy. Articulation is indifferent and sounds that are to be produced at the papilla incisiva (s, t, d, l, n) may be formed interdentally or addentally (between or against the teeth). Sounds which require bilabial pressure (p, b) or labiodental coordination (w, v, f) may be compensated for.

The International Association of Orofacial Myology names on their website (www.iaom.com) the following reasons for an OMD to develop:

- Improper oral habits such as thumb or finger sucking, cheek/nail biting, tooth clenching/grinding.
- Restricted nasal airway due to enlarged tonsils/adenoids and/or allergies.
- Structural or physiological abnormalities such as a short lingual frenum (tongue-tie) or abnormally large tongue.
- Neurological or developmental abnormalities.
- Hereditary predisposition to some of the above factors.

Adding to the list an aberrant Rooting and Sucking Reflex as a possible cause for an OMD reveals a whole new perception to this disorder.

The Rooting and Sucking Reflex might be aberrant out of the following reasons:

- As the third one to develop in utero it depends on the Withdrawal and/or Moro reflex to emerge and prepare the neurological pathways prior to the emergence of the Rooting and Sucking Reflex.
- The Rooting and Sucking Reflex experiences a strong stimulus by the pressure exerted in the crown area during the natural birthing process, therefore a caesarean birth can also be listed as a possible cause.
- This reflex is active and supportive during the feeding process. A baby that was fed with a bottle which teat does not resemble the shape of a nipple or which teat has a too wide opening will not be sucking in a physiological manner. Therefore the reflex will not be utilized sufficiently. The reflex needs to perform its movement pattern around 100,000 times to establish the neurological pathway it was designed for. If the reflex cannot fulfil its purpose it will remain aberrant.

**Learning difficulties related to the OMD:**
Some have already been named amongst the physical symptoms like: the lack in oxygen supply that leaves the learner tired and struggling to maintain concentration, to learn eating
manners and to develop correct articulation. The indifferent articulation brings another difficulty along. The muscular experience, in articulation of a sound, supports the phonological representation of the sound. That means if a child sounds "s" and "sh" in the same way, for example between the teeth, he might find it hard in recognizing the two different sounds or telling them apart when listening to another speaker. Difficulties in spelling are a likely consequence.

The connection to the aberrant Rooting and Sucking Reflex reveals further barriers to learning:
- The Rooting and Sucking Reflex reveals itself in a head movement of the baby in the direction of the stimulus with mouth open and the tongue ready to grasp the nipple. The head movement sideways stimulates the proprioception and builds the first pathways for vision. Reflexes to follow like the Asymmetric Tonic Neck Reflex or the Head Righting Reflexes have the function to establish these pathways for vision. With the Rooting and Sucking Reflex still being active, higher visual functions like writing and reading cannot be accessed easily thus creating a barrier to learning.
- The process of learning how to write is connected with the Rooting and Sucking Reflex also in another way: The reflex builds the pathway for the sensory-motor loop between hands and mouth. If the reflex does not complete this pathway, the learner shows poor fine motor skills and slow handwriting.
- The child might experience difficulties in running due to the hick-up in the development of the sense of proprioception. The physiological consequences of the tongue not applying pressure against the hard palate have been described earlier. According to the Theory of The Triune Brain, neurological and emotional consequences can be identified:
  - Above the hard palate the emotional brain or limbic system is situated. The development of this part of the triune brain is strongly dependent on the Rooting and Sucking Reflex. Providing the brain with the first experiences of smell and taste, it builds the foundation for our emotional memory system which is controlled by the limbic system. The pressure that is applied by the tongue against the hard palate activates the emotional brain causing a relaxed and confident feeling. The child with an OMD stimulates itself emotionally by putting things into his mouth which at a later stage might develop into the habit of hair sucking. He gains relaxation from eating and might end up being overweight.
  - An aberrant Rooting and Sucking Reflex together with an underdevelopment of the emotional brain creates emotional immaturity. The child shows an emotional brain functioning that leaves him busy with himself; thus hindering his communication skills development. A lack of self-confidence adds to the barriers to learning.
  - A learner who is acting out of his emotional brain needs a lot of compensational energy to access the thinking brain. Following lessons and completing tasks in school will be experienced as emotionally and physically draining by a learner with the described barriers to learning.

The following home programme addresses the aberrant Rooting and Sucking Reflex and the various symptoms caused by the aberrant reflex which are compiled under the term OMD. The home programme addresses a learner who can train on his own. For children who are too young to do the movements alone, a second person performs the circle massages on the child and guides through the active exercises.

Choose four exercises every day to perform. Your exercises for the day should include one massage, one tongue workout and one lip workout.

(1) Crown massage: The learner will need a second person to perform the crown massage on the back of the head. The helper stands behind the learner and forms a circle with thumbs and index fingers which he places on the top back part of the learner's head. On inhalation pressure is applied onto the crown area, on exhalation the pressure is released. Repeat at least three times.
Circle-massage 1: One finger on chin, one hand on belly button – massage in circles simultaneously.

Circle-massage 2: One finger above upper lip, one hand on sacrum – massage in circles simultaneously.

Tongue workout 1: Stick the tongue out as far as possible, then pull it back as far as possible. Repeat at least five times. This exercise can be intensified by pulling orthodontic elastic ring (see picture) over the tongue as far as possible. The ring will slide off the tongue while the exercise is performed providing an intense stimulation of the outline of the tongue.

Tongue workout 2: Lift the tongue high in the mouth, resting the tip of the tongue on the papilla inscisiva while the jaw remains wide open. Try to increase the time the tongue is elevated from exercise to exercise ever so slightly. This exercise can be supported with an orthodontic elastic ring lying loosely on the tip of the tongue providing tactile feedback about the positioning of tip of the tongue to avoid sliding towards the incisors while trying to hold it at the papilla inscisiva.

Tongue workout 3: Move the tip of the tongue up and down between the middle of the upper and the middle of the lower lip, the jaw is wide open. Repeat at least five times. For the untrained tongue the elevation is difficult and you might tend to compensate with the jaw pushing upwards. A second person can help by stabilising the jaw with the thumb and index fingers on the side of the jawbone, the middle finger bent underneath the chin. Your helper needs to make sure not to press into the cheek with thumb and index finger.

Tongue workout 4: Stick the tongue out as far as possible and bring the tip of the tongue from the right corner of the lips to the left corner and back. Repeat at least five times. Prevent compensation through lateral jaw movement by stabilizing with the grip described in tongue workout 3.

Lip workout 1: (= silent lip workout). Protrude closed lips to full extend (association kiss lips), then stretch lips to full extend (association smile). Hold each position for the count of eight and repeat three times.

Lip workout 2: Protrude open lips to full extend (sound “Cooo!”), then stretch open lips to full extend (sound “eee!”) sounding “Cooeee!” while you move from the protruded to the stretched position. Hold each position for the count of eight and repeat three times.

Lip workout 3: Protrude lips, open lips in protruded position sounding “Shhh!” and closing lips – holding the protruded position. Hold each position for the count of eight and repeat three times.

Power ON: Draw an imaginary line from your left eye down just below the collar bone on your heart side. Rub the spot for a while. This will increase your energy level while at the same time relieve visual stress and help you relax and talk!

Jaw dropper: Let your jaw drop down in a relaxed manner leaving the mouth wide open. Find the jaw joint just above the molars and underneath your earlobes. Gently massage the joint from top to bottom.

Confidence booster 1: Cross the feet and arms in a hugging fashion. Rest the tongue high against the palate in the sucking position. Hold the position for a count of eight. Breathe slowly. The eyes may be closed. Repeat three times. Should it be too difficult to bring the complete back of the tongue against the palate, follow the following steps adding ring after ring when you feel ready to:

a. One orthodontic elastic ring on the tip of the tongue. Press the tip of the tongue against the papilla inscisiva.

b. Place a second ring behind the first one on the tip of the tongue. First bring your tongue in position (a), then lift the rest of your tongue up until you can feel the second ring against your hard palate.

c. Place a third ring behind the first two rings. Make sure you stay in the middle line of the tongue. Follow the instruction in step (b).

d. Place one ring on the tip of the tongue and two rings on the sides of the tongue. Follow the instructions in step (b).
Confidence booster 2: Perform the meditation “The Colour of Confidence” as instructed below. You may change the text, prolong or shorten the meditation according to your needs.

MEDITATION: The Colour of Confidence

Choose a quiet place. Make sure nobody will disturb you during the following five to ten minutes. Sit, relaxed, on a chair in your confidence booster – position. Cross your feet and arms in a hugging fashion. Rest the tongue high against the palate, in the sucking position. Breathe slowly. Close your eyes.

Take a walk through your memories in order to find a situation in which you were really self-confident. Was it in school when you were the one who got the best mark for your work? Was it when you were the fastest player in your sports-team? Was it when you taught a friend something that your friend couldn’t do before? Was it when you received a compliment from a very special person?

As soon as you find the situation that made you feel really self-confident, grasp the feeling that says “I can do it!” and find a matching colour for it. If you could build a frame around the picture of you being self-confident, in which colour would you paint the frame? The first colour that comes up might already be the right one for you. But feel free to try as many colours as you like until you find the colour that says to you: “I can do it!”.

Imagine your chair standing in a puddle of water. Notice how the puddle is made of a pure colour – it is your colour, the one that lets you know “I can do it!” Watch the puddle around your chair for a while. When you are ready, you can allow the puddle to pull you in. Imagine how you slide off your chair into the puddle. See your colour splash up the moment you enter it! Feel how the feeling of self-confidence takes over. You are covered, all over, in self-confidence. See the colour dripping from you as the feeling of self-confidence flows through your body.

You are back in your chair. The puddle has done its work and can now evaporate. As the puddle gets smaller and smaller you notice how a little cloud – in your colour – above your head manifests. Imagine how the cloud lets one little raindrop – in your colour – rain down on you. The raindrop falls right on top of your head. From there the rain drop runs down the back of your neck and down your spine. While you experience the encouraging feeling of being self-confident, once again, you feel how the energy of your colour running down your spine lifts you up. Vertebra by vertebra you straighten up your spine. This is the posture of self-confidence. You are now ready to face the day.

Spend some thoughts on what awaits you during this day. Now you can imagine what you would like to see happening to you today.

When you are ready, you can straighten your legs and stretch your arms above your head. If you want to, you can sigh or yawn out loud. Open your eyes.

Find a pen in the colour that reminds you that you can do anything you put your mind to. Draw a tiny cloud onto the back of your hand. Remember what self-confidence feels like while you draw your cloud. The cloud and the feeling that it contains will accompany you through the day. You can let it rain down on you how often and when ever you wish to!
About this meditation:
- The meditation can be split into pieces (the frame, the puddle, the cloud, the raindrop) and used separately.
- The part of the puddle is extracted from Peter Freeth: Neuro-Linguistic Programming – Skills for Learning; 2003; p 79.
- The colour and the cloud / raindrop serve as an anchor for the feeling of self-confidence.

About anchoring:

“Anchoring is a perfectly natural process that is part of the brain’s memory storage system. By connecting sensory experiences with simple reference markers, an entire memory can be brought to life with one simple stimulus, like a certain smell takes you back to a holiday, or a certain piece of music brings to mind a vivid memory of someone special. […] [You] basically get yourself into a heightened emotional state […] and then see, hear or feel some unique, simple sensory stimulus such as a word, sound image or touch. You could visualise a colour, hear a word, speak a word or squeeze your hand in a certain way – all of these work well as anchors and work best when used together. […] An important step in establishing an anchor is to break the anchored state and then return to it. […] You could have one for each different emotional state that will be of use to you, and anchor each one on a different finger, with a different word or with a different colour.”

(Freeth, NLP – Skills for Learning; 2003; pp 68f, 74, 80).

BIBLIOGRAPHY


12.05.2009.

By Verena Prinsloo
Speech-Language Therapist, Advanced Mind Moves®-Instructor.
The article is extracted from the Mind Moves®-assignment.
verena.prinsloo@mind-moves.com