

## Straws As Therapy Tools

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Film writers and novelists know that one quick path into a storyline is through the reliable dramatic tool: food. Oral motor therapists are no different. This article is the first of a two-part series that explores the use of simple tools to facilitate therapy for a variety of speech disorders. The first tool - straws - can be used by many clients. The primary goal of the use of straws is to address insufficient tongue retraction. This treatment encourages increased speech clarity whether the client has an inter-dental lisp or other varieties of phoneme distortions. Therapeutic straws have also been found to be useful when working with velopharyngeal insufficiency or a client that is recovering from a cerebral vascular accident (CVA). In these instances and numerous others, specially graduated straws are used in a hierarchical succession to work on a specific component of oral movement.

The use of straws in speech therapy is not uncommon. For many years straws have been an important utensil in feeding and lip rounding exercises. On the client's level the straws themselves are viewed as fun and the food is experienced as a reward. At the therapeutic level straws have the promise of addressing a multiple array of disorders and muscle groups far beyond traditional practice. A little over twelve years ago, when I was initially using straws for feeding or lip-rounding goals, I was struck by the improved tongue retraction (and therefore speech clarity) that was its side-effect. Since then straws have become one of my most important therapy tools.

Traditional therapy methods start with the assumption of adequate tongue muscle function. The premise of traditional therapy would follow that if you listen to me when I say "ball" (auditory stimuli), and you look at a ball when I say it (visual stimuli), and if you hold the ball (tactile stimuli) when I say it, then through this multi-sensory approach you will acquire the ability to say "ball". Oral motor therapy (OMT) does not work like that, particularly with our special education clients who have reduced visual or auditory capabilities. OMT asserts that the

translation of this tactile information has to take place in the mouth; that therapists must put something into their client's mouths that is going to increase their client's awareness of their mouth and that will, in a series of measured progressions, strengthen the target muscle groups. This oral muscular development and control is an important prerequisite which then enables the clinician to use traditional articulation therapy.

Let's review some basics. In English, in order to have connected speech (co-articulation) and speech clarity we have to stabilize the back of our tongue on the back of the palate. Then, whatever else our tongue is required to do, it moves from that position of stability. The tongue elements work with four basic movement components: 1) retraction/protrusion, 2) back elevation/depression, 3) tip elevation/ depression, and 4) the ability to spread the sides of the tongue. When babies are born they have approximately a 50% back and 50% forward movement from the resting position called a suckle. As the child gets older and begins spoon and cup-feeding they achieve about a 75% retraction and 25% protrusion. They do not stick their tongues out during feeding. Those who do frequently present with feeding problems. Straws have been prescribed routinely for these occurrences because, at the very least, through straw feeding, the client can return to the 50%/50% suckle. But there is no reason to stop there, and, I would argue that allowing clients to suckle straws is therapeutically wrong IF treatment stops there. Suckling can actually exacerbate protrusion of the tongue. (It should be mentioned that sippy-cups, a popular feeding tool, encourage suckling, once again falling short of the preferred 75%/25% retraction/protrusion goal.)

By continuing to use a progressive series of increasingly more complex straws and thicker liquids we can teach the tongue muscle to retract. The goal is to achieve close to a 75% retraction; to achieve that position of stability. The back of the tongue in stabilized retraction allows the tip of the tongue to move side-to-side to alternating back molars; the

very movement that is needed to chew food effectively. At this milestone we have clients who attain more eating independence and improved nutrition, both very important for children that have not progressed well with cups or spoons.

How do therapeutic straws address speech clarity goals? Children or adults with interdental lisps are missing this important component of stabilized tongue retraction. Clients who stabilize their tongue at the front of their mouth between their teeth rather than in the retracted position of stability are said to be fronting their sounds. If a client is using an interdental production on /t/, /d/ or /n/, which are the first stable retracted sounds in the developmental scale, the mastery of these sounds must occur before attempting to master /s/ or /z/. If a developmentally normal three-year-old interdentalizes on /n/ there is already a problem. In fact, any three-year-old with an interdental production on /t/, /d/ or /n/ needs help to retract the tongue, and further, any child with an identified speech problem who suckles, whether its a bottle, cup or straw, is maintaining their speech errors if they are secondary to interdental tongue placement. (If a developmentally normal four-year-old does not interdentalize on /t/, /d/ or /n/, has correct tongue blade retraction, but lisps on /s/ it is possible that the lisp is secondary to a developmental delay and may not need therapeutic intervention.)

How do we get clients on therapeutic straws and at what age or point in therapy? Muscles can be toned at any age; one or one hundred. These techniques will work anytime but the younger the client the easier.

Young children with an identified dysfunction can often be started as early as one-year-old. Many of our clients with Down syndrome are started this early because we are working on the concept of retraction as a critical oral motor skill that then cascades into other oral motor benefits. Other clients with a low tone diagnosis also benefit from this early intervention. Many of these children are still on a bottle at ages two, three or four; suckling. In virtually all cases, by the age of two, straw therapy can be successfully undertaken. Some children need an assisted transition. I use a squeezable "honey bear", emptied, cleaned, filled with slightly thickened liquid and retrofitted with a straw. The child can still clutch the "honey bear" bottle while learning to draw liquid up through the straw. The

care-givers for low-tone children who may not be able to pull liquids up on their own initially can gently squeeze the liquid up to assist.

Exactly what is straw drinking? Normal straw drinking requires complex movement from the jaw, lips and tongue. Through the coordination of these movements a vacuum draw is created. Each of our speech sounds are made with a different combination of these graded movements.

Over many years I developed a successional group of straws with each individual straw working on a specific part of those graded movements. After initial experiments with ordinary straws, which offer such limited results as to be therapeutically unusable, I located every conceivable type of straw produced and jury-rigged them when necessary. Ultimately I was compelled to persuade straw manufacturers to custom-produce a few of the straws for the specific attributes that I needed.

This hierarchy of straws progresses through a matrix that advances from multiple sips to single sips and then from thin liquids to thickened liquids while varying the straw's diameter, overall length and the structural complexity via elbows, curves, twists and placement of a lip block.

How would therapy begin? At the outset - making sure that the client is sitting up straight in a stable position receptive to drinking - I give them a simple, straight, regular-diameter straw to see how they will use it, allowing them to drink from it like they normally would. I place my finger at the point where the straw is entering the mouth so that I can then take the straw out and measure the length from the entry point to the tip of the straw that is inside the mouth. There are several things to watch for at this stage. Is the straw more than 1/4 - 1/2 of an inch inside their mouth? If so, then they are either suckling it or biting it. Is the client biting the straw? If so, that could be an indication of jaw instability. The correct position for the therapeutic use of the straw is with jaw stability, tongue retraction and lip rounding to fully enable drawing.

The first straw in my hierarchy is cut to the length that I measured above. The straw has a lip block which encourages sealing and rounding. Over a succession of visits as the client exhibits proficiency I surreptitiously reduce the length from the lip block to the internal tip until the client has achieved primary retraction and at least minimal lip

rounding. At this point the client is said to be therapeutically drinking from a straw and I am free to move through the remainder of my hierarchy. Clients are taking these straws home and using them daily for drinking all thin liquids. As they progress, thickened liquids and purees are introduced using specifically identified straws in the hierarchy. The clients use these straws to drink 3-4 ounces once a day. As each straw is mastered or seems to be too easy, I move onto the next. For some clients this may be as frequently as one new a straw a week, as it might be in the case of a developmentally normal child with an interdental lisp. For this client a full, successful course of treatment may last as short as four months.

Other clients, depending on the diagnosis, for example cerebral palsy, the therapy, while still effective, may continue for a longer period of time. A client with Down syndrome may complete the full treatment in one to two years and we often find that this type of therapy reduces the duration of speech therapy as they get older. Clinicians who are targeting specific sounds in therapies with their clients will find that therapeutic straw treatments have proven to be effective with the standard production of /t, d, l, n, k, g, s, z, ch, sh, j, & r/.

Clients with velopharyngeal insufficiency are another population that benefit from straw drinking. For them it increases tongue retraction, changes resonance and elevation of the velum. Clients recovering from Cerebral Vascular Accidents (CVA) often exhibit lip asymmetry. Therapeutic straw drinking works to bring their lips to symmetrical midline thereby improving speech clarity.

An extra advantage of treatment through therapeutic straw drinking is that it can be equally effective with clients irrespective of cognitive abilities. That is the therapeutic results, (tongue retraction and tongue grading), for a client with severe cognitive impairment and limited or no language skills can be almost the same as with a developmentally normal child or adult. This adds to its promise as an important tool in the arsenal of all oral motor and speech pathologists.