TALKTOOLS®

Drooling Remediation Program

for Children & Adults

by Sara Rosenfeld-Johnson, MS, CCC-SLP

Appropriate for individuals with Down syndrome and other low tone diagnoses, Cerebral Palsy, Post CVA, Parkinson's disease, as well as those with habitual open-mouth postures.For use by therapists & parents.

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TALKTOOLS®

talktools.com

Dedicated

To my brother, Terry
Great to have you aboard!

CONTENTS

INTRODUCTION

I have an older brother whose name is Terry Rosenfeld. Our dad died when we were very young. Terry was twelve and I was only five. As far back as I can remember my brother has been someone to look up to and to emulate. He is a psychologist by profession, but in truth he is just one of those guys whom everyone likes. He has a way with people. And, I have to admit; when he says something you just assume that it is worthwhile listening. So, you ask, where am I going with this? And what does this have to do with a book about drooling? For that we will have to go back a few years.

Terry was the Director of Pupil Services in Lawrence Township, New Jersey, for 33 years. He was dedicated to his teachers and to the children he served. He knew that I was starting to lecture in speech therapy, but he was not sure exactly what I did. Because Terry lived in Pennsylvania and I lived in Arizona we didn't see each other as much as we would have liked. Well, one day I was invited to present at the New Jersey Speech and Hearing Association Spring Conference. My husband Phil called Terry and his wife Ilene and invited them to join us for a few days in Atlantic City where the convention was being held.

While Phil was setting up the TalkTools® display in the exhibit hall, Terry decided he would take the time to watch his "little sister" lecture. There were approximately 400 Speech and Language Pathologists in the room. As my two-hour presentation was coming to an end, my brother left to see if he could help Phil. By the time he reached the exhibit hall close to one hundred SLPs from the presentation were storming theTalkTools® exhibit to find out more about my work. Terry just stood back and watched. As I was answering questions about my "Horn Blowing Hierarchy," a woman who had not attended my presentation said, "I don't understand. The exhibitors over there are selling individual horns for much less than your bags of horns. What makes your horns so special?" Then from behind my back I heard my brother say, "It's not the horn, it's the hierarchy." I almost fell over. Not only was he in my class, but also he understood what I had been talking about. He later told me that he was overwhelmed by the excitement generated by my presentation. The enthusiasm was contagious.

That was the beginning. Two years later Terry retired from his position with the public school system, and he and Ilene now work with us. They attend conferences where either I or another Innovative Therapists International speaker is presenting. After a few months, not only were Terry and Ilene knowledgeable about my work and the therapy techniques I use, they were accumulating questions from therapists, parents and teachers. Last summer, while vacationing in Rhode Island, Terry said to me, "You know what Sara? You should write a book on how to control drooling. That seems to be a big problem." So I did. Thanks, Terry!

CHAPTER 1

Instructions: How to Use the Program

This program, as well as all of the programs, books and therapy materials we create at TalkTools® is unique because our goal is to educate you as we teach you how to correct or address a problem. As you progress through the program there will be words that may be unfamiliar to you. These words are printed in **bold** format and are defined in the Glossary. If you have any questions along the way you can always reach us via e-mail at: info@talktools.net, and one of our therapists will get back to you. You are not alone.

In **chapter 2, "What is Drooling?,"** you will learn why many children and adults have difficulty with saliva control. A variety of case studies are presented which may parallel the needs of your specific client or child. Once you know what to look for, the diagnostic component of the program will be much easier to complete.

In **chapter 3, "How Do We Begin? Making the Diagnosis,"** the diagnostic evaluation is broken down into step-by-step instructions so that as you follow the book you will learn how to diagnose the various components of the saliva control deficit. Possible areas of deficit include: *1) Body Posture, 2) Sensory Awareness, 3) Lip Closure and 4) Saliva Retraction.* If you are a therapist you will then be able to transition this information into the evaluation of your other clients. The therapy tools you will be using for the diagnostic evaluation are included in the kit you received with the *Drooling Remediation Program*. These same therapy tools will be used to implement the Program Plan.

In **chapter 4, "Diagnostic Check Sheet,"** you will learn how to organize the information you have learned on a simple to use check sheet. The information is recorded in four categories: *1) Severity of Drooling, 2) Areas of Deficit, 3) Description of Deficit and 4) Program Plan*. At the back of this manual you will find reproducible copies of the Diagnostic Check Sheet and the Sequence of Progress forms. Although this manual is under strict copyright, the two recording forms are reproducible.

In **chapter 5, "Establishing an Oral-Motor Exercise Program,"** you will learn how to determine which exercises are appropriate for the individual with whom you are working. For example, if you have checked *Lip Closure* as one of your areas of deficit on the Diagnostic Check Sheet, in chapter 5 you will learn that one or all of the following exercises will be included in your Program Plan: "Graduated Bite Blocks," "Tongue Depressor for Lip Closure," and/or "Button-Pull." For those of you who are familiar with my book, *Oral-Motor Exercises for Speech Clarity,* it will be important to note that the exercises of the same name have been modified in this manual to address the specific needs of individuals with saliva control deficits.

In **chapters 6, 7, 8, 9 and 10,** the exercises are described in an easy to follow, step-by-step manner, which promotes a feeling of success for everyone involved in the treatment plan. Because skills at one level are task analyzed and must be mastered before the next level or "Step" can be introduced, repetition and practice insure success. As mentioned above, the therapy tools needed to implement the exercises are included with this program.

In **chapter 11** the Sequence of Progress form is explained. Record keeping is important to show progress and to show success. At the back of this manual you will find reproducible copies of the Diagnostic Check Sheet and the Sequence of Progress forms. Although this manual is under strict copyright, the two recording forms are reproducible.

Now that you know how to use the *Drooling Remediation Program,* let's have some fun and enjoy the success!

CHAPTER 2

What is Drooling?

Let's begin with a basic premise, "Prolonged drooling or the inability to control saliva is never normal." Yes, many typically developing children drool when their teeth are erupting through the gum ridge or when they are congested. But the drooling is associated with pain, discomfort or illness. Once the **teeth erupt** or the illness is eliminated, the drooling goes away. Or, at least, it is supposed to go away. When chronic drooling is not associated with the eruption of teeth or with an upper respiratory illness that pattern of inability or reduced ability to control saliva should be considered abnormal.

So why is chronic drooling such a big problem for so many children and adults?

The first question you must ask yourself is, "Why does this child or adult drool?" Your answer to this very complex question will give you the key to reducing or even eliminating the problem. As a speech and language pathologist for over 30 years, and now specializing in oral-motor/feeding/speech therapy, I have worked with thousands of clients who demonstrate chronic drooling. In the early 1970s, when I first started treating children with Down syndrome and cerebral palsy, I used a behavioral approach to treating their saliva control deficits. As you can imagine, my long-term success rates were not very impressive. Chronic drooling does not, in fact, have a behavioral foundation. The primary causative factors are physiological.

The ability to successfully control saliva is based upon four variables in the area of Oral-Motor Function: 1) Body Posture, 2) Sensory Awareness, 3) Lip Closure and 4) Saliva Retraction.

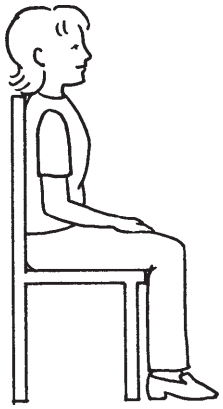
1) **Body Posture**: Stability in the body will allow for mobility in the mouth. Stability in the body is defined as, "the ability to maintain or regain equilibrium. It is a dynamic process underlying postural control and controlled movement."

2) **Sensory Awareness**: Hyposensitivity on and within the oral cavity is a primary causative factor in the inability to control saliva. If the individual is unable to "feel" saliva how is he or she expected to control saliva?

3) **Lip Closure**: Lip closure is achieved when the jaw is strong enough to be stable and the lips are strong enough to work independently from the jaw. If either of these muscle groups is weak, the individual will not be able to maintain adequate lip closure for saliva control. Another factor, which inhibits lip closure, is obligatory mouth breathing due to nasal blockage.

4) **Saliva Retraction**: Saliva must be retracted back over the surface and sides of the tongue to position it for effective swallowing. Individuals who evidence a habitual **tongue thrust** or **reverse suckle swallow** have difficulty adequately retracting saliva.

Deficits in even one of these four primary causative factors will result in the inability or reduced ability to control saliva. Let's try an experiment. Find a chair that allows you to sit up straight with a 90-degree angle in your hips, knees, chin and ankles as pictured below. Your feet must rest firmly on the floor.



In this supported body posture close your lips and breathe through your nose. As you feel saliva build-up in your mouth swallow it. Easy right? O.K., now let's try something else. Using the same chair, slide your bottom forward, open up your legs slightly and lean forward as pictured below:

Pretend that you have **low tone** or muscle weakness in your whole body and throughout the oral structures. Because you have muscle weakness in your jaw you will not be able to keep your lips closed, so open your mouth. Because you have weakness in your head and neck musculature you will not be able to hold your head upright, so tilt your chin down slightly. O.K., now just "hang" there. If you stay in this position for a minute or two, what will happen? That's right; you will begin to drool. Even if you are typically developing, you will have difficulty managing saliva if your body stability is compromised. So sit up and let's figure out how this information is directly related to individuals who evidence chronic drooling. Remember that deficits in even one of the four variables will result in reduced ability to control saliva. Deficits in two, three or all four of the areas will increase the severity of the drooling problem.

Drooling is superimposed on abnormal muscle functioning or is secondary to a medical issue. In addition, some individuals have saliva control deficits secondary to facial anomalies, in which case a dental appliance may be recommended to normalize the oral structures. These appliances are temporary and should be used in association with the *Drooling Remediation Program.*

Before you begin this program it is critical that you consult with the appropriate health care professional or medical personnel to determine if there is a primary medical factor that can be addressed by the physician. For example, if the individual you are working with uses **obligatory**

mouth breathing as a result of enlarged adenoids and/or enlarged tonsils, chronic allergies, chronic upper respiratory problems, etc., these medical concerns should be addressed prior to introduction of this program.

In the ideal world the elimination of the medical issue will eliminate the pattern of chronic drooling. In the "real world" however, there may be a variety of scenarios. The following case studies demonstrate some of these "real world" possibilities. As you will note, in some cases our goal is to eliminate drooling while in other cases the goal is to reduce drooling.

Child A – Down syndrome
Luke, a 2 ½ year-old male with a diagnosis of Down syndrome, chronic upper respiratory problems, enlarged adenoids and habitual drooling is referred to his pediatrician. An **adenoidectomy** is performed and, although Luke now has the potential to breathe through his nose, he continues to rely on obligatory mouth breathing. His drooling has not been eliminated or even reduced as a result of the surgery. Luke is an excellent candidate for the *Drooling Remediation Program*. Our goal would be to eliminate his drooling pattern completely.

Child B – Down syndrome and Seizure Disorder
Amanda, a 7 year-old female with a diagnosis of Down syndrome, chronic upper respiratory problems, enlarged adenoids and habitual drooling also has a history of seizures. Surgical removal of her adenoids is not recommended secondary to her medical history. As we know, children with Down syndrome also evidence low muscle tone and muscle weakness in whole body and oral muscle groups. Removal of the adenoids would increase the prognosis for elimination of the drooling pattern but would not eliminate the problem in itself. In other words, without the surgery our goal for Amanda would be to reduce her drooling pattern using the *Drooling Remediation Program*.

Child C – Cerebral Palsy
Olivia, a 4 year-old female with a diagnosis of Cerebral Palsy and habitual drooling is both significantly physically challenged and cognitively challenged. She chews and safely swallows soft solids using a habitual suckle swallow pattern. Feeding therapy and the *Drooling Remediation Program* should be introduced simultaneously for best results. At the onset of the program our goal for Olivia would be to reduce her drooling gradually. However, over time the goal may change to elimination of drooling depending on her level of cooperation and on the underlying potential of her muscle systems.

Child D - Dysphagia
Daniel, a 6 year-old male with a diagnosis of **dysphagia** and habitual drooling, is being fed exclusively through a G-tube (feeding tube). Because of his difficulty swallowing, saliva builds-up in his oral cavity and drooling is habitual. Daniel would not be considered a good candidate for the *Drooling Remediation Program* at this time. Feeding therapy should be introduced first. Once Daniel learns how to swallow safely the *Drooling Remediation Program* can be introduced.

Child E – Typically Developing with Chronic Ear Infections
Gregory, a 3 year-old typically developing male has difficulty controlling his saliva; he drools minimally out of the sides of his mouth. Gregory has a history of chronic ear infections, which accompany upper respiratory problems. His mother describes him as a kid who is always sick. Following bilateral **myringotomy surgery** (i.e., tubes in both ear drums), Gregory's health improved dramatically.

However, he continues to have difficulty with saliva control. Despite the fact that he is now able to breathe through his nose, he has retained the habit of keeping his mouth open during breathing. Gregory is an excellent candidate for this *Drooling Remediation Program*. Our goal would be to eliminate his drooling pattern completely.

Adult A – Cerebral Palsy-Cognitively Intact
Anthony, a cognitively intact 15 year-old male with a diagnosis of cerebral palsy (CP) has been drooling his entire life. He is non-ambulatory, has difficulty chewing firm solids and speaks in a slow but intelligible manner. His physician noted no medical causative factors associated with his drooling. The fact that Anthony is cognitively intact and is a willing participant in the *Drooling Remediation Program* increases his chances for success greatly. At the onset of the program, our goal for Anthony would be to reduce his drooling significantly. However, over time the goal may change to elimination of drooling depending on his underlying **neuromuscular** potential.

Adult B – Down syndrome
Samantha, a 21 year-old female with a diagnosis of Down syndrome, has been drooling minimally her entire life. A variety of behavioral-based drooling programs have been attempted over the years with no long-term success. Samantha is able to read on a fourth grade level, she can do simple math and speaks in 4-5 word sentences, but she is unable to get a job as she has significant difficulty controlling her saliva; she spits when she talks. Samantha is an excellent candidate for the *Drooling Remediation Program*. Our goal would be to eliminate her drooling pattern completely.

Adult C – Parkinson's Disease
Max, a 67 year-old male with a diagnosis of Parkinson's disease, has started drooling as his disease has progressed. Muscle group diagnosis reveals that there is significant lack of control in his jaw muscles, which has also resulted in a reduction of skills in speech clarity and in the ability to chew solid foods. Because this program also targets jaw skill training, Max would benefit from the *Drooling Remediation Program*. Our goal would be to maintain his existing oral-motor skill levels.

Adult D – Post CVA
Minerva, a 73 year-old female has sustained a mild CVA. A diagnosis of dysarthria has been made. She also has difficulty controlling saliva on the left side of her mouth. She is enrolled in physical therapy and occupational therapy to improve gross motor and fine motor skills. Minerva is an excellent candidate for the *Drooling Remediation Program*, as the exercises would address her "**fine, fine motor** deficits" (i.e., her habitual drooling pattern and dysarthric speech pattern.)

Now that we understand the problem it is time to look at the *Drooling Remediation Program.*

CHAPTER 3

How Do We Begin? Making the Diagnosis

Why is this child or adult drooling?

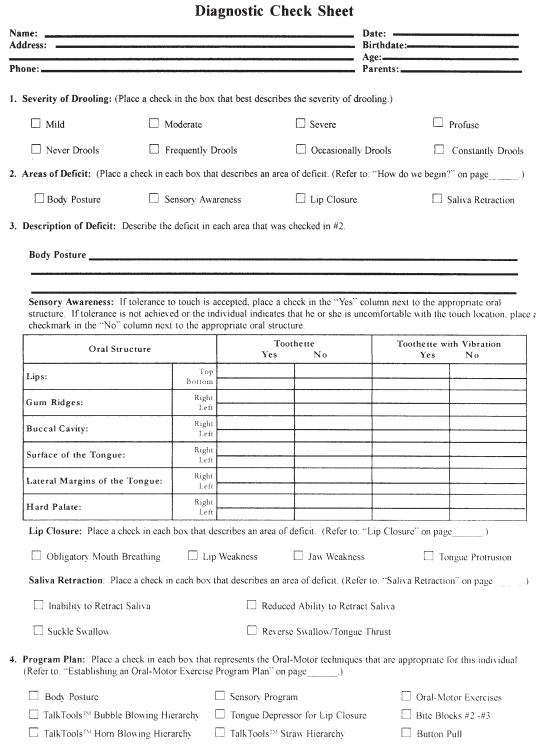
If you have not read the information presented in the previous chapter beginning on page 1, **STOP**, go back and read that information. It is very important!

O.K., now let's continue by learning how to make the correct diagnosis and to answer the question, "Why is this child or adult drooling?"

After the individual has been seen by the appropriate health care professional and the recommendations have been implemented, it is time to once again look at the physiological components of saliva control:

1) Body Posture
2) Sensory Awareness
3) Lip Closure
4) Saliva Retraction

Remember, a deficit in any one of these areas will result in an inability or reduced ability to control saliva. Some individuals have deficits in only one area while others have deficits in two, three or four of the areas. It will be important for you to diagnose which areas of deficit are present in the individual with whom you are working. It will also be important for you to make a decision about the severity of the drooling and to chart progress as you work through the *Drooling Remediation Program.* The two forms used in this program are: Diagnostic Check Sheet and Sequence of Progress.



Diagnostic Check Sheet

Name: _____ **Date:** _____
Address: _____ **Birthdate:** _____
_____ **Age:** _____
Phone: _____ **Parents:** _____

1. **Severity of Drooling:** (Place a check in the box that best describes the severity of drooling.)

☐ Mild ☐ Moderate ☐ Severe ☐ Profuse

☐ Never Drools ☐ Frequently Drools ☐ Occasionally Drools ☐ Constantly Drools

2. **Areas of Deficit:** (Place a check in each box that describes an area of deficit. (Refer to: "How do we begin?" on page_____)

☐ Body Posture ☐ Sensory Awareness ☐ Lip Closure ☐ Saliva Retraction

3. **Description of Deficit:** Describe the deficit in each area that was checked in #2.

Body Posture _____

_____

_____

Sensory Awareness: If tolerance to touch is accepted, place a check in the "Yes" column next to the appropriate oral structure. If tolerance is not achieved or the individual indicates that he or she is uncomfortable with the touch location, place a checkmark in the "No" column next to the appropriate oral structure.

Oral Structure		Toothette Yes	Toothette No	Toothette with Vibration Yes	Toothette with Vibration No
Lips:	Top / Bottom				
Gum Ridges:	Right / Left				
Buccal Cavity:	Right / Left				
Surface of the Tongue:	Right / Left				
Lateral Margins of the Tongue:	Right / Left				
Hard Palate:	Right / Left				

Lip Closure: Place a check in each box that describes an area of deficit. (Refer to: "Lip Closure" on page_____)

☐ Obligatory Mouth Breathing ☐ Lip Weakness ☐ Jaw Weakness ☐ Tongue Protrusion

Saliva Retraction: Place a check in each box that describes an area of deficit. (Refer to: "Saliva Retraction" on page_____)

☐ Inability to Retract Saliva ☐ Reduced Ability to Retract Saliva

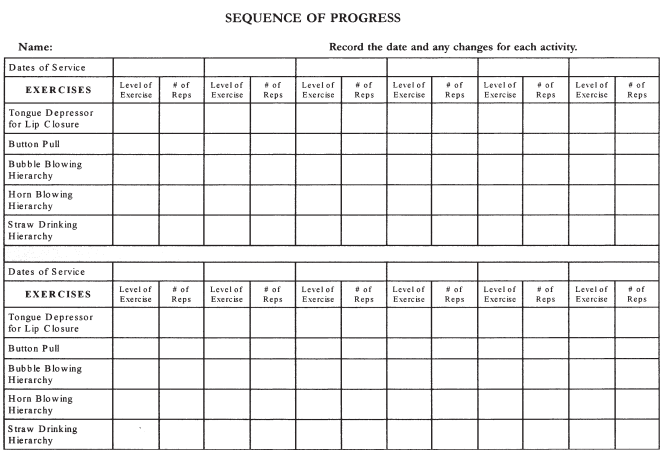
☐ Suckle Swallow ☐ Reverse Swallow/Tongue Thrust

4. **Program Plan:** Place a check in each box that represents the Oral-Motor techniques that are appropriate for this individual. (Refer to: "Establishing an Oral-Motor Exercise Program Plan" on page_____)

☐ Body Posture ☐ Sensory Program ☐ Oral-Motor Exercises

☐ TalkTools™ Bubble Blowing Hierarchy ☐ Tongue Depressor for Lip Closure ☐ Bite Blocks #2 -#3

☐ TalkTools™ Horn Blowing Hierarchy ☐ TalkTools™ Straw Hierarchy ☐ Button Pull



SEQUENCE OF PROGRESS

Name: Record the date and any changes for each activity.

Dates of Service											
EXERCISES	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps
Tongue Depressor for Lip Closure												
Button Pull												
Bubble Blowing Hierarchy												
Horn Blowing Hierarchy												
Straw Drinking Hierarchy												

Dates of Service											
EXERCISES	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps
Tongue Depressor for Lip Closure												
Button Pull												
Bubble Blowing Hierarchy												
Horn Blowing Hierarchy												
Straw Drinking Hierarchy												

1) <u>Body Posture</u>

Stability in the body allows for mobility in the mouth. In other words, a stable body posture is necessary for independent movement of the jaw, lips and tongue. Drooling occurs when there is no **dissociation** of the jaw, lips and tongue. For maximum results it will be very important that you establish and maintain the most **optimal body posture** throughout the implementation of the *Drooling Remediation Program*.

<u>Parent NOTE</u>: Despite the fact that you have been involved in your child's therapy program, some of you may not know how to establish and maintain the most optimal body posture. Consultation with an occupational therapist or a physical therapist will be your first step in helping your child to reduce or eliminate drooling.

<u>Therapist NOTE</u>: Education in optimal body posturing is an important component of any oral-motor therapist's training. Unfortunately, many of you have not been trained in **NDT, Neuro-Development Technique,** or in positioning. If you are not confident in your skills consultation with a professional who understands how to establish and maintain optimal body posturing for your client will be your first step in working to reduce or to eliminate drooling for that client.

Suggestions:

1. Establish a **stable body posture**. A stable posture is described as one that facilitates a 90-degree angle in the pelvis, knees, ankles and chin.

2. In most cases, stability is increased when both feet are placed firmly on the floor. This is not true for some individuals with **high tone** who use the floor to push back.

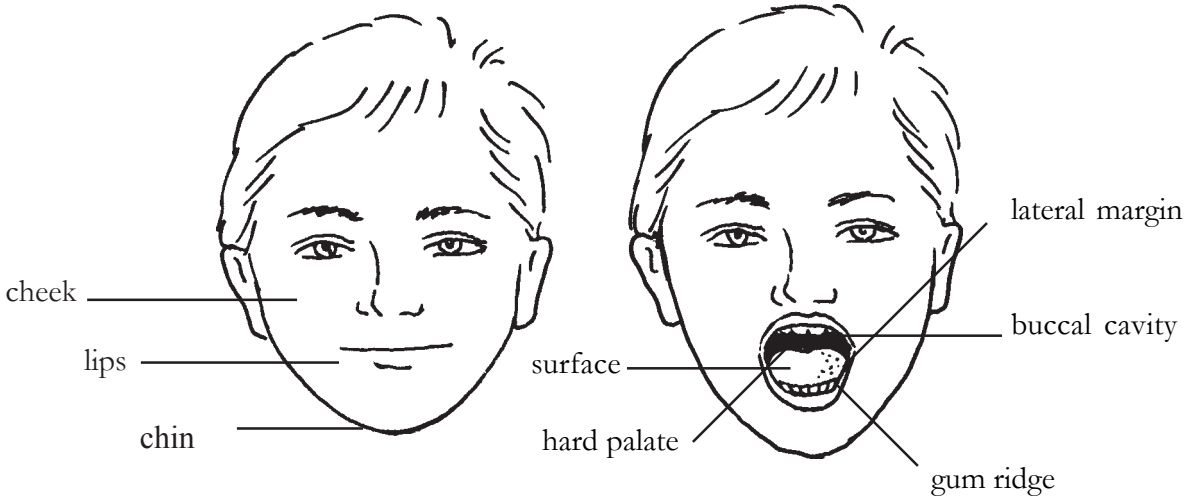
3. Placing a piece of dycem or Rubbermaid textured shelf liner on the surface of the individual's seat is an easy way to inhibit sliding forward on the chair.

4. Once you have established the optimal body posture, remember to constantly monitor to insure that the individual maintains this posture throughout the implementation of the *Drooling Remediation Program*.

2) <u>Sensory Awareness</u>

The second area of possible deficit is in the sensory system. Not all individuals who demonstrate chronic drooling have deficits in this area, but if they do it will greatly reduce their ability to control saliva. **Hyposensitivity** is defined as an inability or reduced ability to react to sensory input. In the case of the individual who demonstrates chronic drooling, the problem lies in the inability or reduced ability to feel saliva build-up on or within the oral cavity. Imagine that you have just been to the dentist and have had Novocain. Not only do you imagine that you cannot speak clearly, you also have difficulty feeling the saliva in your mouth. It is not uncommon for even you to drool out of the Novocained side of your mouth. Now imagine how the chronic drooler feels.

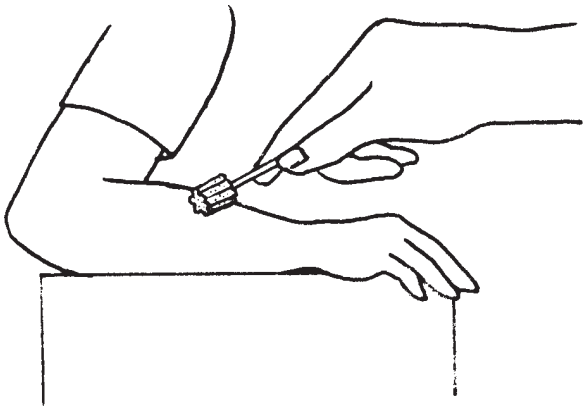
Sensory Diagnosis: This technique will be used to determine if there is reduced sensitivity on or within the oral cavity. Remove 1 pink non-flavored toothette and the lollipop vibrator from the TalkTools™ Drooling Remediation Program Kit.



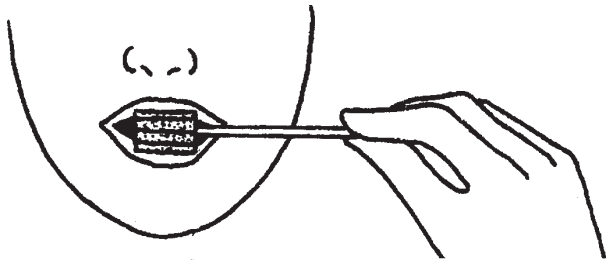
Step #1: Toothette

1. Use the side of the toothette, as pictured below, with firm pressure to sequentially touch the following list of body parts: hands, arms, shoulders, forehead, cheeks and chin. If tolerance to touch is achieved you can progress to the oral cavity.

> **<u>NOTE</u>:** If tolerance to touch is not achieved at any time during this Sensory Diagnosis, STOP and determine if the individual lacks trust in your touch or if you are observing hyper-sensitivity or tactile defensive behavior patterns. (*DAPP*, Rosenfeld-Johnson 2002)



2. Slightly dampen the non-flavored toothette. Squeeze out any excess water. Using a twisting motion rotate the side of the toothette back and forth on the surface of the lips. Then work into the oral cavity via the gum ridges and buccal cavity or surface of the lips as pictured below.



3. Continue to use the twisting motion to stimulate the surface and lateral margins of the tongue. End with stimulation to the hard palate.

4. Step #1 should take between 1 to 2 minutes. Individuals with oral hyposensitivity will tolerate this touch sequence.

Step #2: Toothette with Vibration. Place the same non-flavored toothette in the lollipop vibrator.

> **NOTE:** Do not use the lollipop vibrator if there is a history of seizure disorders that are stimulated by vibration.

1. While pressing on the vibrator button, rotate the side of the toothette back and forth on the surface of the lips. Then work into the oral cavity via the gum ridges and buccal cavity or both sides of the mouth as pictured above.

2. Continue to use the vibrating toothette to stimulate the surface and lateral margins of the tongue. End with stimulation to the hard palate.

3. Step #2 should take between 1 to 2 minutes. Individuals with oral hyposensitivity will tolerate this touch sequence. In many cases the reaction will be very positive, as the individual is able to "feel" on and within the oral cavity for the first time.

> **NOTE:** Individuals with normal sensitivity will start to feel uncomfortable when you use the toothette with vibration on the surface and lateral margins of their tongue. When you touch their palate they will feel very uncomfortable and may push your hand out as they verbalize, "That tickles."

Step #3: You have now completed the Sensory Diagnosis. Enter the information on the Diagnostic and Program Plan Check Sheet. Once you have confirmed hypo-sensitivity on or within the oral cavity it will be necessary to begin each practice session with the **Toothette** and **Toothette with Vibration** activities to "wake up" the oral cavity prior to volitional exercise.

> **NOTE:** As skills improve in muscle strength and endurance due to practice of the exercises outlined in the *Drooling Remediation Program,* the sensory system will become less hyposensitive, and the individual will be better able to feel saliva build-up within the oral cavity.

3) <u>Lip Closure</u>

The third area of possible deficit is in the inability to achieve or to sustain lip closure. What might appear to be weakness in the lips may, in fact, turn out to be caused by one or any combination of the following problems: obligatory mouth breathing, jaw weakness, lip weakness and tongue protrusion. It will be important for you to determine which if any of these areas of deficit are present.

Obligatory Mouth Breathing: As was discussed previously, the open-mouth posture associated with obligatory mouth breathing is the result of medical issues that have not been resolved or of residual behaviors/habits that continue after the medical issues have been eliminated. Ideally, we would like to eliminate the medical issues prior to introduction of the *Drooling Remediation Program;* however this is not always possible. The success of the program will be compromised if the individual is not able to breathe effectively through his/her nose.

Jaw Weakness: Instability and lack of **grading** in the jaw musculature will directly impact on the ability to achieve or to sustain lip closure. Diagnosis of jaw instability must be performed by a health care professional that specializes in the field of oral-motor therapy. If the jaw is unstable, the lips will not be able to dissociate to achieve or to sustain lip closure. Saliva will escape from the lips if they are not closed or cannot be used effectively to form the vacuum necessary to assist in the propulsion of saliva back over the tongue to initiate a safe swallow. If jaw instability is diagnosed, it will be necessary to incorporate the TalkTools® Graduated Bite Block exercises described in *Oral-Motor Exercise for Speech Clarity* by Sara Rosenfeld-Johnson.

Lip Weakness: There is a significant difference between the inability to achieve/sustain lip closure secondary to jaw weakness verses the same inability to achieve/sustain lip closure secondary to lip weakness. Look at the two pictures below.

The individual on the left demonstrates the open-mouth posture that is secondary to jaw weakness. Notice how wide the jaw is open. Following the NDT model of development, we know that if the muscles of the jaw are weak the muscles of the lips will also be weak. For this individual it will be necessary to improve jaw stability using the TalkTools® Graduated Bite Block exercises in addition to working on the lip strengthening exercises that you will be using in the *Drooling Remediation Program.*

The individual on the right demonstrates the open-mouth posture that is secondary to lip weakness. The jaw is probably strong and stable enough to support independent lip closure. Notice how the jaw is not as open, and there is only a slight distance between the upper and lower lips. The lip strengthening exercises that you will be using in the *Drooling Remediation Program* should be sufficient enough to facilitate the ability to achieve and to sustain adequate lip closure, i.e., Horn Blowing

Hierarchy, Button-Pull Exercise and Tongue Depressor for Lip Closure Exercise. This lip seal will be used to form the vacuum necessary to assist in the propulsion of saliva back over the tongue to initiate a safe swallow.

Tongue Protrusion: Inter-dental posturing of the tongue during rest and/or during function will inhibit the individual's ability to achieve or to sustain lip closure. In other words, if the tongue is protruding between the teeth or between the lips, lip closure will be impossible. This abnormal posturing will be addressed in the next section, Saliva Retraction. The tongue retraction exercises that you will be using in the *Drooling Remediation Program* will correct the tongue protrusion pattern: Horn Blowing Hierarchy, Bubble Blowing Hierarchy, and Straw Drinking Hierarchy.

4) <u>Saliva Retraction</u>

The fourth and final area of possible deficit is in the inability or reduced ability to retract saliva back over the tongue to initiate a safe swallow. Individuals who present with chronic drooling behaviors frequently demonstrate this inability to retract saliva. Upon diagnostic evaluation these individuals are observed to be using a **reverse swallow**, a **suckle swallow** or a **tongue thrust** pattern associated with function (i.e., feeding and speech production). The exercises used in the *Drooling Remediation Program*, therefore, will be working to teach tongue retraction to facilitate saliva retraction but will also be beneficial in improving feeding skills and speech clarity. These exercises are: Horn Blowing Hierarchy, Bubble Blowing Hierarchy and Straw Drinking Hierarchy.

CHAPTER 4

Diagnostic Check Sheet

Entering Information on the Diagnostic Check Sheet Form:

Now that you have decided which areas of deficit are present in the individual with whom you are working, enter the information on the Diagnostic Check Sheet. You will also be asked to rate the severity of the drooling and to enter that information on the Diagnostic Check Sheet. We will be using two rating scales. Please enter information in both sections.

The Consortium on Drooling 1991 (Blasco et al. 1991) developed the following method for rating the severity of drooling:

Mild: drooling only onto the lips
Moderate: drool reaches the chin
Severe: drool drips off the chin and onto the clothing
Profuse: drooling off the body and onto objects (furniture, books, etc.)

Another way to rate severity is to note the duration of the drooling behavior by using the following scale (www.Droolinginfo.org):

Never Drools
Occasionally Drools
Frequently Drools
Constantly Drools

Diagnostic Check Sheet

Name: _____ **Date:** _____
Address: _____ **Birthdate:** _____
_____ **Age:** _____
Phone: _____ **Parents:** _____

1. Severity of Drooling: (Place a check in the box that best describes the severity of drooling.)

☐ Mild ☐ Moderate ☐ Severe ☐ Profuse

☐ Never Drools ☐ Frequently Drools ☐ Occasionally Drools ☐ Constantly Drools

2. Areas of Deficit: (Place a check in each box that describes an area of deficit. (Refer to: "How do we begin?" on page 8.)

☐ Body Posture ☐ Sensory Awareness ☐ Lip Closure ☐ Saliva Retraction

3. Description of Deficit: Describe the deficit in each area that was checked in #2.

Body Posture _____

_____

_____

Sensory Awareness: If tolerance to touch is accepted, place a check in the "Yes" column next to the appropriate oral structure. If tolerance is not achieved or the individual indicates that he or she is uncomfortable with the touch location, place a checkmark in the "No" column next to the appropriate oral structure.

Oral Structure		Toothette Yes	Toothette No	Toothette with Vibration Yes	Toothette with Vibration No
Lips:	Top				
	Bottom				
Gum Ridges:	Right				
	Left				
Buccal Cavity:	Right				
	Left				
Surface of the Tongue:	Right				
	Left				
Lateral Margins of the Tongue:	Right				
	Left				
Hard Palate:	Right				
	Left				

Lip Closure: Place a check in each box that describes an area of deficit. (Refer to: "Lip Closure" on page 12.)

☐ Obligatory Mouth Breathing ☐ Lip Weakness ☐ Jaw Weakness ☐ Tongue Protrusion

Saliva Retraction: Place a check in each box that describes an area of deficit. (Refer to: "Saliva Retraction" on page 13.)

☐ Inability to Retract Saliva ☐ Reduced Ability to Retract Saliva

☐ Suckle Swallow ☐ Reverse Swallow/Tongue Thrust

4. Program Plan: Place a check in each box that represents the Oral-Motor techniques that are appropriate for this individual. (Refer to: "Establishing an Oral-Motor Exercise Program Plan" on page 16.)

☐ Body Posture ☐ Sensory Program ☐ Oral-Motor Exercises

☐ TalkTools® Bubble Blowing Hierarchy ☐ Tongue Depressor for Lip Closure ☐ Bite Blocks #2 -#3

☐ TalkTools® Horn Blowing Hierarchy ☐ TalkTools® Straw Hierarchy ☐ Button Pull

CHAPTER 5

Establishing an Oral-Motor Exercise Program

Now that you have completed the diagnostic component of the *Drooling Remediation Program* and have entered the information on the Diagnostic Check Sheet, you have all of the information that you will need to develop a therapy program. Your goal will be to reduce or to eliminate drooling.

In the ideal world exercises are practiced daily. In the real world this may not be possible. Exercise physiology tells us that in order to improve muscle strength and endurance exercises must be practiced a minimum of three times per week.

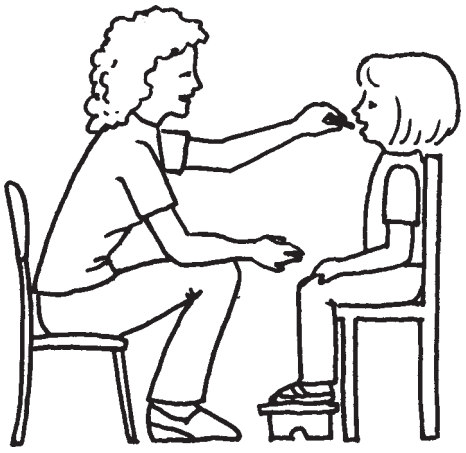
Remember the four possible areas of deficit: 1) Body Posture, 2) Sensory Awareness, 3) Lip Closure and 4) Saliva Retraction. Since you have identified the deficits you will now be able to choose the exercises from the list below that are appropriate for the individual with whom you are working.

> **NOTE:** The exercises used in this program are similar to those that are presented in the book, *Oral-Motor Exercises for Speech Clarity,* by Sara Rosenfeld-Johnson, but they have been modified to target the specific needs of individuals with saliva control deficits.

1) Body Posture: If there is a deficit in this area your Program Plan will include one of the following therapeutic seating suggestions:

Seating #1:

1. Establish and maintain a stable seating posture, which encourages a 90-degree angle in the pelvis, knees and ankles. The feet should be touching the floor or other firm surface at all times. Monitor to insure that the individual maintains this posture during all oral-motor practice sessions. Work face to face with hands at midline



2. Place a piece of "Dycem" or "Rubbermaid" textured shelf liner on the surface of the seat to increase stability.

Seating #2:

1. Refer to an occupational therapist or a physical therapist to establish the most **optimal body posture** for this individual to be used during all oral-motor practice sessions.

2. Work face to face with hands as close to midline as possible.

2) <u>Sensory Awareness</u>: If there is a deficit in this area your Program Plan will include a sensory component. Refer to the Diagnostic Check Sheet. Begin your sensory program where the individual first demonstrated deficits. The sensory component of your Program Plan will be used once the individual is in a stable posture and just prior to the introduction of the oral-motor exercises.

3) <u>Lip Closure</u>: These exercises will be used to establish adequate strength and endurance in the lips to achieve closure. The following exercises may be used simultaneously: "Button-Pull," "Tongue Depressor for Lip Closure," "Horn Blowing Hierarchy," "Bubble Blowing Hierarchy" and "Straw Drinking Hierarchy."

<u>NOTE</u>: Individuals who master the following exercises will have adequate lip closure for normal saliva control, which may result in the elimination of drooling. Individuals who are unable to master the following exercises because of motor or cognitive skill levels may only be able to achieve the goal of reduced drooling.

Graduated Bite Block Exercise: If jaw instability has been diagnosed by a healthcare professional who specializes in the field of oral-motor therapy, you will use this exercise to improve jaw strength and grading as a prerequisite for working on the "**Tongue Depressor for Lip Closure"** and "**Button Pull"** exercises. Refer to *Oral-Motor Exercises for Speech Clarity,* by Sara Rosenfeld-Johnson for a complete description of all jaw exercises.

<u>NOTE</u>: The exercises using Bite Blocks #2 and #3 must be completed before you can begin either the "**Button Pull"** or **"Tongue Depressor for Lip Closure"** exercises.

CHAPTER 6

Tongue Depressor For Lip Closure

Tongue Depressor for Lip Closure: If jaw instability has been ruled out, remove the single tongue depressor from the TalkTools® Drooling Remediation Program Kit and follow the directions as described below.

NOTE: If the individual is unable to hold the single tongue depressor for even one second, refer to the exercise entitled, "Sponge-Balsam-Tongue Depressor in *Oral-Motor Exercises for Speech Clarity*.

This exercise is designed to increase **awareness, placement, strength** and **muscle memory** for lip closure. It will address mentalis muscle placement, strength and muscle memory. Since prolonged lip closure is a necessary component of saliva control, this exercise should be used for individuals who are drooling.

Suggestions:

1. You may begin this exercise at Step #1 with individuals who can hold a tongue depressor between their closed lips, extending out the sides of their mouth, without teeth clinching, for one second.

2. For individuals who do not possess sufficient lip closure/strength to hold the tongue depressor for one second, refer to the exercise entitled: "Sponge-Balsam-Tongue Depressor."

3. For individuals who can only hold the tongue depressor between their closed lips with teeth clinching, thereby using **compensatory** jaw assistance, begin with Step #1 of this exercise. If compensatory teeth clinching cannot be eliminated by the conclusion of Step #1, refer to the jaw stability exercises prior to introducing the remainder of this exercise.

4. You will need the flavored tongue depressors, a package of pennies and some tape to implement this exercise.

5. Homework: Establish during the session where the individual fails on the exercise hierarchy described in this chapter (i.e., "Step" and number of repetitions). Practice that "Step" at the highest level of successful repetition for at least one week before moving on to the next level or "Step."

Goals:

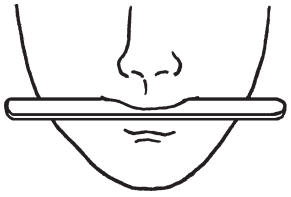
1. To increase awareness on the lips.

2. To improve lip closure.

3. To reduce or eliminate drooling.

Step #1

1. Place the single flavored tongue depressor horizontally between the closed lips, extending out the sides of the mouth, as pictured below:



2. Criteria for Success: Remain at this "Step" until the individual can hold the tongue depressor for 25 seconds, 3 times consecutively.

NOTE:

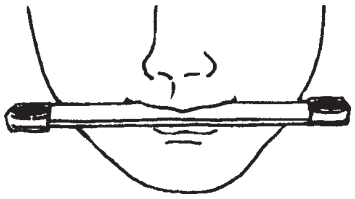
a. If this posture can only be taught with teeth together placement, accept that compensatory posture initially. Elimination of compensatory teeth closure must be achieved before progressing to Step #2.

b. Monitor to insure that the individual is using jaw-lip dissociation. The jaw should be stable; no sliding or jutting forward should be seen. The lips should remain flat and relaxed. They should not be retracted in a compensatory "fixing" pattern.

Step #2

1. Place a single penny on the top surface at each end of the tongue depressor. Secure each penny with a piece of tape.

2. Place the tongue depressor, with the two pennies, horizontally between the closed lips, extending out the sides of the mouth, as pictured below:



3. Criteria for Success: Remain at this "Step" until the individual is able to hold the tongue depressor with a slight chin tuck, for 25 seconds, 3 times consecutively, before progressing to Step #3.

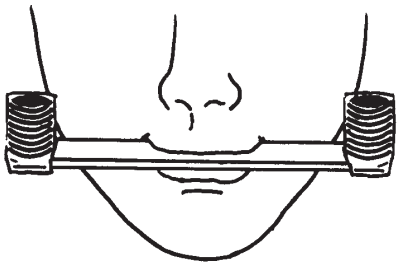
Step #3

1. Place another penny on top of each of the existing pennies. You will have a total of four pennies. Secure with tape.

2. Place this "mini-barbell" between the lips as described in Step #2.

3. Instruct the individual to hold this position for 25 seconds, 3 times.

4. Criteria for Success: Increase the number of pennies, one per side, holding for 25 seconds, 3 times, until you have a total of 16 pennies on the "mini-barbell."



CHAPTER 7

Button Pull

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Button Pull: If jaw instability has been ruled out, remove the 5 buttons from the TalkTools® Drooling Remediation Program Kit and follow the directions as described.

This exercise will address one of the components of insufficient saliva control: weak bilabial closure/ weak lip strength.

NOTE: If the individual is unable to hold the single tongue depressor for even 1 second, return to the exercise entitled, "Sponge-Balsam-Tongue Depressor." Complete that exercise before introducing "Button Pull."

Suggestions:

1. You will need 5 buttons of graduated sizes and a strong thread that will not fray on the ends to implement this exercise.

2. Remove the 5 flat buttons of increasing size (3/8," 4/8," 5/8," 6/8," 7/8") from the TalkTools® Drooling Remediation Program Kit. Place an 18" piece of thread in one of the holes and pull the thread out through the other hole. When the lengths are even, tie a snug knot directly behind the button. You should now have two 9" lengths with the button in the middle. Repeat this procedure for each button. You should now have 5 buttons attached to 5 separate pieces of thread for this exercise.

3. Remember to always hold on to the thread during this exercise to insure that the button does not enter the oral cavity.

4. Homework: Establish during the session where the individual fails on the exercise hierarchy described in this chapter (i.e., "Step" and number of repetitions). Practice that "Step" at the highest level of successful repetitions for at least one week before moving onto the next level or "Step."

Goals:

1. To improve lip strength.

2. To improve lip closure.

3. To reduce or eliminate drooling.

Step #1

1. Instruct the individual to close his/her teeth. Establish a **natural bite**. Measure the distance from the bottom of the lower central incisors to the top of the upper central incisors, while he/she continues to hold the bite, from gum line to gum line. This measurement will vary with each individual.

NOTE: If the individual cannot achieve a natural bite**,** return to the jaw stability exercises.

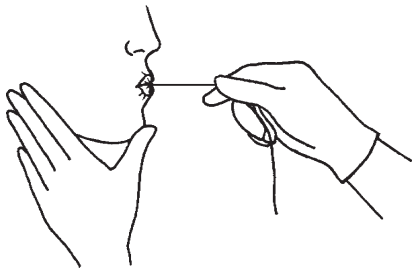
2. Choose the button, with the thread, that is the same measurement as the distance from the lower central incisors to the top of the upper central incisors.

3. Instruct the individual to close his/her teeth in a natural bite. Place the flat side of the button against the upper and lower central incisors at midline. Hold the thread as pictured below.

4. Instruct the individual to close his/her lips over the button. The button will now be enclosed in the cavity between the closed teeth and the closed lips, as pictured below in (a). Remain at this "Step" until the individual can hold this position for 10 seconds, 5 times.

(a)

(b)



5. Criteria for Success: Once you are sure that the individual has learned to keep the button in the cavity, pull forward gently with **isometric resistance** as pictured above in (b).

Hold for 15 seconds, 5 times consecutively.

Step #2

1. Present a threaded button that is 1/8" smaller than the original button.

2. Criteria for Success: Repeat the technique described in Step #1. When the individual can hold this button between his/her lips and closed teeth for 15 seconds, 5 times consecutively, transition to a 1/8" smaller button.

Step #3

1. As goals are achieved at each button measurement, reduce the size of the button by 1/8".

2. Criteria for Success: Continue until the individual can hold the 3/8" button in the cavity between the lips and the closed teeth for 15 seconds, 5 times consecutively.

4) Saliva Retraction: These exercises will be used to establish adequate strength and endurance in the lingual musculature to achieve adequate tongue retraction for saliva retraction. The following exercises may be used simultaneously: "Graduated Bite Blocks," "Horn Blowing Hierarchy," "Bubble Blowing Hierarchy" and "Straw Drinking Hierarchy."

> **NOTE:** Individuals who master the following exercises will have adequate tongue retraction for normal saliva control, which may result in the elimination of drooling. Individuals who are unable to master the following exercises because of motor or cognitive skill levels may only be able to achieve the goal of reduced drooling.

CHAPTER 8

Horn Blowing Hierarchy

Horn Blowing Hierarchy: Remove Horn #1 from the TalkTools® Drooling Remediation Program Kit and follow the directions as described.

This exercise is designed to address the goals of lip strengthening and tongue retraction.

Suggestions:

1. Establish that the horns are therapy tools and should not be used as toys by either the individual or their siblings.

2. You will need the horns in the "TalkTools® Original Horn Kit" to implement this exercise.

3. When not in use for therapy or home practice, keep these tools out of reach.

4. The therapist or parent must hold the horn to prevent the use of compensatory postures (biting or lip retraction).

> **NOTE**: Once the technique is learned, it may be possible to allow the older individual to hold the horn. It is critical to the success of this program that the individual not bite on the horn as that posture will inhibit dissociation. The horns would then become toys rather than retaining their status as therapy tools.

5. Monitor to insure that the individual is not using compensatory body postures (e.g., shoulder elevation, whole body extension, teeth biting or lip retraction).

6. Follow the "Horn Blowing Hierarchy" from Horn #1 through Horn #14.

> **NOTE**: Flat mouthed horns will work on lip closure and round mouthed horn will work on tongue retraction to address drooling control.

7. Each horn must be blown 25 times in rapid repetitions, without any compensatory posturing, before you can proceed to the next horn on the hierarchy.

8. Hearing Impaired Individuals: Horns can be used successfully with this population, despite the fact that the individual cannot "hear" the sound that the horn makes. Place a sound sensitive toy (e.g., a dancing plant) in front of the individual. When the horn is blown, the sound sensitive toy will move to reinforce the task of successful blowing.

9. The video entitled *Horns as Therapy Tools* teaches this technique and the reasons for its usage. It is designed for therapists, parents, teachers, etc., to insure that each step is introduced and practiced correctly.

10. Homework: Establish during the session where the individual fails on the hierarchy (e.g., he/she can blow Horn #1, 8 times successfully with assisted jaw elevation and lip rounding). Practice that level daily for a minimum of one week.

Goals:

1. To improve lip strength and closure (Horns #1, 2, 3, 4, 5, 6, 7, 8).

2. To improve tongue retraction (Horn #9, 10, 11, 12, 13, 14).

3. To reduce or eliminate drooling.

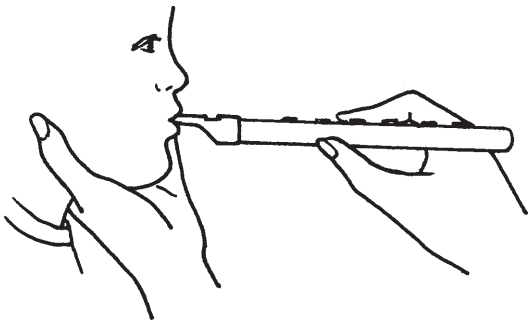
Step #1

1. In this step you will determine which of the 14 horns you will use with each individual.

2. Begin with Horn #1.

> **NOTE:** The following duration criteria for each horn must be achieved before progressing to the next horn on the hierarchy:
>
> **Horn #1**=any duration **Horn #2**=1 sec. **Horn #3, 4**=1+ sec
>
> **Horn #5, 6, 7, 8**=2 sec. **Horn #9, 10**=2+ sec **Horn #11, 12, 13, 14**=3 sec.

3. Place the tip of the mouthpiece at midline on the individual's lower lip as pictured below:



4. Instruct the individual to blow the horn. One of the following scenarios will be observed:

> a. The individual is unable to blow the horn because of lack of sufficient volitional airflow. Continue to work with this horn in subsequent sessions.
>
> b. The individual is unable to blow the horn because he/she does not understand the concept of blowing to create a sound. Discontinue this exercise until he/she learns to blow volitionally.
>
> c. The individual can blow the horn but is using a compensatory posture. Inhibit that posture. Consultation with an occupational therapist or a physical therapist may be necessary if you are not familiar with these techniques. Once the posture is inhibited, instruct the individual to blow that same horn again.

d. The individual can blow the horn successfully at any number of repetitions but requires assisted jaw elevation or lip closure. Continue to work with this horn in subsequent sessions until the superimposed stability can be eliminated.

e. Criteria for Success: If the individual can blow the horn successfully 25 times in rapid repetition, without a break and without assisted jaw elevation or assisted lip closure, progress to the next horn on the hierarchy. As your skills improve in using horns for therapy, you will be able to estimate at which level you should begin this diagnostic component of therapeutic horn blowing.

5. Once you establish the highest level at which the individual achieves success, right before failure, use that horn in Step #2.

Step #2

1. The therapist or parent places the tip of the mouthpiece on the individual's lower lip as pictured above. The individual is then instructed to blow the horn. Monitor to insure that there are no compensatory postures (refer to #4 and #5 in Suggestions on page 23).

2. Remove and replace the horn after each repetition to re-establish the correct position in the mouth.

3. Criteria for Success: Have the individual work up to blowing the targeted horn 25 times using the required tone duration in rapid repetitions, without a break, before progressing to the next horn on the hierarchy. Repeat this "Step" until all horns have been mastered.

CHAPTER 9

Bubble Blowing Hierarchy

Bubble Blowing Hierarchy: Remove the TalkTools® Bubble Tube from the TalkTools® Drooling Remediation Program Kit and follow the directions as described.

This exercise is designed to address the goals of lip strengthening and tongue retraction.

Suggestions:

1. Try to limit bubbles to oral exercise techniques. If they are used for reinforcement for other tasks, the motivation to work may be eliminated or the individual may want to swat at the bubbles, thereby, removing their hands from midline, which eliminates the stable body posture.

2. As in all oral-motor exercise work, the individual must be placed in a stable posture. For some individuals, "Bubble Blowing" will be impossible if attempted in a seated posture. Individuals who do not have postural stability in a chair and who are "fixing" to stabilize, should begin this exercise in a **supine** position on an incline mat (wedge).

3. You will need a Bubble Tube, a Bubble Bear and a puppet to implement this exercise. Use good quality bubbles. You want the bubbles to last until the individual can coordinate the oral movements with airflow.

4. Monitor to insure that the individual is not using compensatory body postures (e.g., shoulder elevation, whole body extension, high or low jaw fixing).

5. The therapist must hold the wand or the Bubble Bear throughout this exercise.

6. Hold the wand approximately 1" from the individual's mouth.

7. If the individual can already blow bubbles, begin at "Step # 4. Each "Step" must be completed 10 times (10 repetitions) before going onto the next step.

8. All exercises should be done in rapid repetitions without a break.

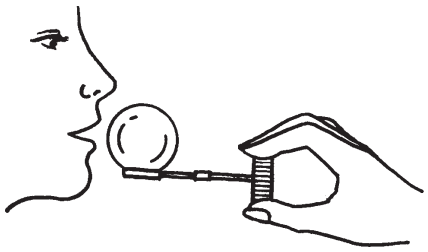
9. Visually Impaired Individuals: Bubbles can be used if there is only minimal response to light. Work in a dark room with a flashlight shining on the bubble. The movement of the bubble will be highlighted.

10. Homework: During the session, establish where the individual fails on the hierarchy (e.g., at Step #3 the individual can blow 5 times successfully). Practice that step at the highest level of successful repetitions.

Step #1

1. The therapist or parent blows a bubble and catches it on the wand.

2. Pop the bubble on the individual's open mouth as pictured below:



3. Wait for any oral movement response (i.e., muscle movement or anticipation movement).

4. Criteria for Success: Repeat 10 times or until you are sure that the individual "feels" the sensation consistently on the lip surface.

Step #2

1. The therapist or parent blows a bubble and catches it on a wand.

2. Hold the wand 1" horizontally in front of the individual's mouth.

3. Place your other hand on the individual's abdomen for increased awareness of abdominal involvement during exhalation (i.e., **adding weight**).

4. As the individual exhales, press gently on the abdominal muscles in response to their exhalation.

5. Reward for any movement of the bubble on the wand.

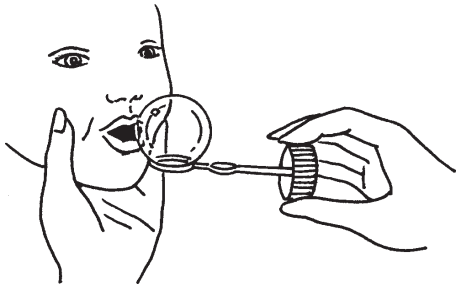
6. Criteria for Success: Repeat 10 times, without a break, before going onto Step #3.

Step #3

1. The therapist or parent blows a bubble and catches it on the wand.

2. Hold the wand horizontally 1" in front of the individual's mouth.

3. With your other hand assist with jaw stability and lip rounding. Place your palm under the individual's jaw. Use your 5 fingers to pull forward gently on the cheeks, as pictured below. This support posture will allow the individual to volitionally constrict the orbicularis-oris muscles for controlled airflow.



4. Instruct the individual to blow the bubble off the wand.

5. Criteria for Success: Repeat 10 times, without a break, before going onto Step #4.

Step #4

1. Dip the wand into the bubble solution.

2. Hold the wand vertically 1" in front of the individual's mouth.

3. Continue to use superimposed jaw and/or lip stability if necessary.

> **NOTE**: In the kit you will find a Bubble Straw. This 2" piece of a jumbo diameter straw can be used to transition from superimposed lip rounding to independent lip rounding for individuals who cannot make this transition automatically. Begin by placing one end of the tube in the individual's mouth while holding the wand at the other end. In this way when the individual blows through the Bubble Straw a bubble will form from the wand. Use verbal and visual reinforcements to talk about the lip rounding which was created by the placement of the Bubble Straw. Over a period of time eliminate the Bubble Straw.

4. Criteria for Success: Blow bubbles 10 times in this position, without a break, before going onto Step #5.

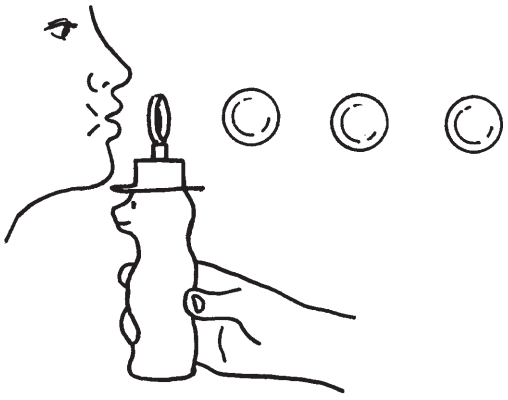
Step #5

1. Use a Bubble Bear.

2. Teach the individual to use a whispered "hoo" position to blow. You should be able to hear a voiceless "hoo." Working in this posture will insure jaw stability and dissociated lip rounding; it will keep the cheeks tight.

3. Hold the wand vertically 1" in front of the individual's mouth.

4. Instruct the individual to blow through the Bubble Bear wand using the whispered "hoo" position, as pictured below.



5. Criteria for Success: Blow bubbles 10 times in this position before going onto Step #6.

Step #6

1. Use a Bubble Bear or other oval wand.

2. Hold the wand 1" in front of the individual's mouth.

3. Work in the whispered "hoo" position. Eliminate all therapist-assisted jaw and/or lip stability.

4. Talk about using rounded lips and how these rounded lips "feel" as the individual blows the bubbles.

5. Criteria for Success: Blow bubbles 10 times in rapid succession, without a break, with appropriate jaw stability and lip rounding (jaw-lip dissociation) before going onto Step #7.

Step #7

1. Use a Bubble Bear.

2. Introduce a puppet who likes to eat bubbles. The puppet will only eat bubbles if they reach its mouth. Do not bring the puppet forward to eat the bubbles.

3. Hold the wand 1" in front of the individual's mouth.

4. Hold the puppet 18" in front of the individual. Instruct the individual to blow in the whispered "hoo" position.

5. Criteria for Success: Repeat this task 10 times before going onto Step #8.

Step #8

1. Repeat Step #7, increasing the distance of the puppet from the individual's mouth to 2 feet. Maintain the criteria of 10 successful repetitions before progressing to #2.

2. Increase the distance by 6" as each criteria of 10 successful repetitions is achieved.

3. Criteria for Success: Using 6" increments, work up to 4 feet from the individual's mouth.

NOTE: The video *Bubbles as Therapy Tools* is a 60-minute video, which is designed to teach this technique to therapists, parents, teachers, etc.

CHAPTER 10

Straw Drinking Hierarchy

Straw Drinking Hierarchy: Remove Straw #1 from the TalkTools® Drooling Remediation Program Kit and follow the directions as described.

Therapeutic straw drinking should be incorporated into the Program Plan when any of your therapy goals include tongue or lip: a) mobility, b) placement, c) position or d) strength. This technique can be used with very young children, as well as, with adults. It has been used successfully with individuals who evidence severe cognitive deficits and for those with normal intelligence. **Therapeutic straw drinking** is the best technique to achieve tongue retraction. It addresses the **eight levels of tongue grading**.

Suggestions:

1. You will need "TalkTools® Straw Kit" to implement this exercise.

2. The "Straw Hierarchy for Thin Liquids" is designed as a home program.

3. The "Straw Hierarchy for Thickened Liquids" on page 34 will begin when you introduce Straw #5 (Step #7 on page 33) on the "Straw Hierarchy for Thin Liquids."

4. The straws can be used in a juice box or in any other stable container. When using the very complex straws, with cognitively impaired or very young individuals, you may want to use a sports bottle. Place part or all of the straw inside the container. This positioning will make the drinking posture more stable and will reduce the likelihood of spilling.

5. When drinking through the existing straw on the hierarchy becomes "easy," the criteria for introducing the next straw on the hierarchy has been met.

6. In the ideal world, the individual drinks all thin liquids, all of the time, through the targeted straw on the hierarchy.

7. A video entitled *Straws as Therapy Tools* teaches the technique and the reasons for its inclusion in a therapy program. It is designed for therapists, parents, teachers, etc., to insure that each step is introduced and practiced correctly.

8. Homework: Establish during the session where the individual fails on the hierarchy. Practice that "Step" at the highest level of successful repetitions for at least one week before moving onto the next level or "Step." It is important that the individual has his/her own set of straws to insure that the appropriate level exercise is being practiced.

Goals:

1. To improve lip rounding.

2. To improve tongue retraction.

3. To reduce or eliminate drooling.

STRAW HIERARCHY FOR THIN LIQUIDS

Step #1

1. Begin with Straw #1.

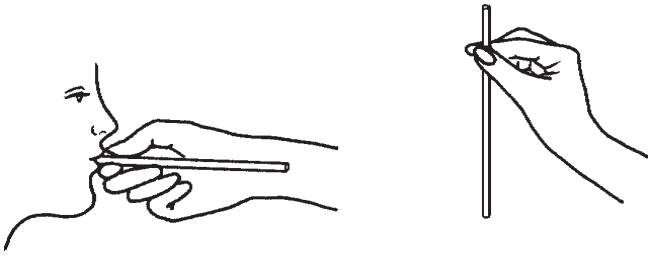
> **NOTE**: As you become more familiar with this technique, you may choose to enter the "Straw Hierarchy" at a higher level, depending on the individual's existing skill levels.

2. Use thin liquids: Water, juice, milk, etc.

> **NOTE**:
>
> a. Prior to using any food-based therapy technique, determine if there are any swallowing deficits, food allergies or other dietary limitations.
>
> b. Very slightly thickened liquid may be used only if swallowing difficulties have been identified.

3. Allow the individual to drink any thin liquid through a regular straw independently for 2-3 seconds.

4. Place your thumb and pointer finger next to the individual's lips, where the straw enters the mouth, as pictured below.

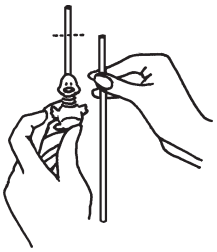


5. Remove the straw and measure the amount of straw that was in the individual's mouth.

> **NOTE**: This measurement will allow you to determine if the individual is biting on the straw or using a suckling pattern to draw the liquid up the straw. Your goal is to inhibit this suckle in favor of a lip protrusion with tongue retraction drawing posture.

6. Use that same length, the length identified in #4 of this "Step," to measure from the **lip block** on Straw #1 to the tip of the straw. Cut off the remaining portion of the straw tip. File the cut end with a nail file to make it smooth.

> **NOTE**: If the individual has placed the entire tip of the straw up to the lip block in his/her mouth, you will not have to cut the straw at this time.



7. Criteria for Success: Practice drinking from this straw for one week. The individual should be encouraged to drink all thin liquids through this straw. Either **single sips** or **repetitive draws** are acceptable.

Step #2

1. Use the same straw that the individual used for homework.

2. Cut the straw tip by 1/4". Do not let the individual observe this procedure.

> **NOTE**: When you use this technique with severely impaired individuals, you may be cutting the straw in only 1/8" segments and remaining on that level for many weeks.

3. Instruct the individual to drink a small juice box or three ounces of another appropriate liquid to establish that he/she can achieve straw drinking of liquids in this new manner.

4. Criteria for Success: Practice drinking from this straw for a minimum of one week. Either single sips or repetitive draws are acceptable.

Step #3

1. Continue to cut the straw tip in 1/4" increments until the entire tip is only 1/4" long.

> **NOTE**: The tongue may still be slightly protruded with some individuals at the 1/4" level.

2. Allow at least one week, after each new cut, for the individual to practice at each skill level.

3. Criteria for Success: Continue until drinking through Straw #1 cut to 1/4" above the lip block is "easy" for the individual. Either single sips or repetitive draws are acceptable.

Step #4

1. Use Straw #2. Secure the lip block 1/4" from the tip of the straw. Place a rubber band behind the lip block to secure its position if necessary.

2. Instruct the individual to drink at least three ounces of any thin liquid before sending the new straw home for practice. Monitor to insure that the individual is using lip protrusion with tongue retraction to draw the liquid up the length of the straw.

3. Criteria of Success: Do not progress to Step #5 until the individual is drinking all thin liquids easily through Straw #2. Carryover to snacks and to all meals should be established before progressing to the next "Step." Either single sips or repetitive draws are acceptable.

Step #5

1. Introduce and use Straws #3 in the same manner as described above. Remember to present this new straw with the lip block pre-set at 1/4" from the straw tip.

2. Criteria for Success: Progress to Step #6 after the individual can drink all thin liquids easily through Straw #3 at meals and snacks. Either single sips or repetitive draws are acceptable.

Step #6

1. Introduce and use Straw #4 in the same manner as described above. This straw has a built-in lip block (e.g., the first twist). Present this new straw that has been pre-cut to 1/4" above the first twist.

2. Criteria for Success: Progress to Step #7 after the individual can drink all thin liquids easily through Straw #4 at meals and snacks. Either single sips or repetitive draws are acceptable.

Step #7

1. By this point, the individual should be drinking with a lip protrusion/tongue retraction draw. If not, return to a lower level on the "Straw Hierarchy" to teach that goal.

2. Introduce Straw #5 by allowing the individual to drink a three ounce juice box independently. Observe to insure that the appropriate lip protrusion/tongue retraction is being used habitually. There is no lip block on this straw. If the individual puts more than ¼" of the straw tip in his/her mouth, return to Straw #4.

NOTE: If you are working with a individual who will require help to achieve the appropriate position and/or to maintain the appropriate position, secondary to **gross motor** or **fine motor** limitations, continue supplying that support throughout the remainder of this exercise. Consultation with a physical therapist or an occupational therapist should be considered if you are unsure how to proceed.

3. After you have established that the individual is using the appropriate drawing technique, transition to a "single-sip technique." Change the instructions as follows:

a. "Place the straw between your lips."

b. "Draw in the liquid until you feel it in your mouth."

c. "Remove the straw but do not swallow the liquid."

d. "Close your lips as you put your tongue tip up, just behind your front top teeth."

e. "Freeze."

f. "Now swallow the liquid without moving your tongue-tip."

g. Repeat until the liquid is consumed.

4. Send Straw #5 home for practice only when the complete technique described above in #3 of this "Step" has been taught ("single draw and swallow technique").

> **NOTE**: Some individuals do not have the cognitive skills to learn the "single draw and swallow technique." For those individuals you will use the "modified technique" as follows:
>
> a. You will place the straw between the individual's lips.
>
> b. Wait for the individual to draw in the liquid until he/she feels it in their mouth.
>
> c. Remove the straw and wait for a swallow.
>
> d. Repeat until the liquid is consumed.

5. Criteria for Success: Progress to Step #8 when the individual can drink all thin liquids easily through Straw #5, as described above, using the "single draw and swallow technique" or the "modified technique," at all meals and snacks.

NOTE: Remember to introduce Straw "A" at this time. Refer to the directions on page 34.

Step # 8

1. Introduce and use Straw #6 in the same manner as described in Step #7.

2. Criteria for Success: Progress to Step #9, when the individual can drink all thin liquids easily through Straw 6, as described above, using the "single draw and swallow technique" or the "modified technique," at all meals and snacks.

Step # 9

1. Introduce and use Straw #7 in the same manner as described in Step #7.

2. Criteria for Success: Progress to Step #10, when the individual can drink all thin liquids easily through Straw #7, as described above, using the "single draw and swallow technique" "modified technique," at all meals and snacks.

Step # 10

1. Introduce and use Straw #8 in the same manner as described in Step #7.

2. Criteria for Success: When the individual is able to drink all thin liquids easily through Straw #8 at all meals and all snacks, tongue retraction should be sufficient to support adequate saliva retraction.

STRAW HIERARCHY FOR THICKENED LIQUIDS (Introduce at the same time as Straw #5 on the "Straw Drinking Hierarchy for Thin Liquids.")

Step #1

1. Begin with Straw "A" for Thickened Liquids (i.e., jumbo straw). Cut the jumbo straw to 4". A lip block should not be necessary if you have worked through Straw #4 on the "Straw Drinking Hierarchy for Thin Liquids."

> **NOTE**: This technique is introduced at the same time as Straw #5 on the "Straw Hierarchy for Thin Liquids" is introduced, not before. These straws do not have lip blocks and are used only one time per day for drinking 3-4 ounces of the targeted thickened liquid.

2. Use three ounces of nectar or a liquid that is the same consistency as nectar.

> **NOTE**: Prior to using any food-based therapy technique, determine if there are any swallowing deficits, food allergies or other dietary limitations.

3. Place the nectar container on the table in front of the individual.

4. Instruct the individual to lean forward and down to "drink" the nectar through the straw. They can use either a single draw/swallow or repetitive draw/swallow. Working in this posture will increase tongue retraction strength.

> **NOTE**: If the individual cannot perform this task utilizing lip protrusion and tongue retraction to effect the "draw," return to the "Straw Drinking Hierarchy for Thin Liquids".

5. Criteria for Success: Drink 3-4 ounces of the nectar, one time per day, through Straw "A" on the "Straw Drinking Hierarchy for Thickened Liquids," which has been cut to 4" in length, for a minimum of one week or until it is easy, before progressing to Step #2.

Step #2

1. Continue to use Straw "A" for thickened liquids, cut to the 4" length.

2. Increase the texture of the food source to a puree consistency.

3. Criteria for Success: Drink 3-4 ounces of puree consistency, one time per day, through Straw "A" on the "Straw Drinking Hierarchy for Thickened Liquids," which has been cut to 4" in length, for a minimum of one week or until it becomes easy, before progressing to Step #3.

Step #3

1. Continue to use Straw "A" for thickened liquids, cut to the 4" length.

2. Increase the texture of the food source to a yogurt consistency.

> **NOTE**: Avoid yogurts with fruit pieces as they will clog the straw or may be aspirated. Be sure to be aware of the existence of any allergies and of the individual's food likes and dislikes to insure that the he/she sees the activity as enjoyable.

3. Criteria for Success: When the individual is able to drink 3-4 ounces of this texture easily one time per day, for a minimum of one week, progress to Step #4.

Step #4

1. Continue to use Straw "A" for thickened liquids, cut to the 4" length.

2. Increase the texture of the food source to a pudding consistency.

3. Criteria for Success: When the individual is able to drink 3-4 ounces of this texture easily one time per day, for a minimum of one week, progress to Step #5.

Step #5

1. From this point on, you will only be changing the straw, not the consistency of the thickened liquid. In other words, for the remainder of this exercise you will only use pudding or pudding consistency thickened liquids.

2. Your goal for this "Step" will be to increase the length of the jumbo straw to its original 8" length, Straw "B".

3. Place the container on the table in front of the individual. Instruct the individual to lean forward and down to "drink" the pudding consistency.

4. Criteria for Success: Drink 3-4 ounces of the pudding consistency through the 8" Straw "B" (jumbo straw), one time per day, for a minimum of one week or until it becomes easy, before progressing to Step #6.

Step #6

1. Introduce Straw "C' for thickened liquids. This is a regular diameter straw.

2. Use only pudding or pudding consistency textures for this "Step."

> **NOTE:** Although it might appear to be difficult, typically developing 4-5 year old children can perform this task.

3. Criteria for Success: When the individual is able to drink 3-4 ounces of this texture easily one time per day, or for a minimum of one week, progress to Step #7.

Step #7

1. Introduce Straw "D" for thickened liquids (6" cocktail straw).

2. This is a difficult "Step," but it can be done with conscientious effort and motivation.

3. Use only pudding or pudding consistency textures for this "Step."

4. Instruct the individual to "drink" the pudding as follows:

   a. "Place the straw between your lips."

   b. "Draw in the pudding until you feel it in your mouth."

   c. "Remove the straw but do not swallow the pudding."

   d. "Close your lips as you put your tongue-tip up, just behind your front top teeth."

   e. "Freeze."

   f. "Now swallow the pudding without moving your tongue tip."

   g. "Open your mouth. Your tongue-tip should still be up behind your top teeth."

6. When the individual is able to drink 3-4 ounces of a pudding texture easily through this straw using the standard swallow posture, you have completed the exercise.

CHAPTER 11

Sequence of Progress Form

Entering Information on the Sequence of Progress Form:

The purpose of this reproducible form is to record progress towards the goal of saliva control. These sheets have been designed to provide an easy tool for you to track progress in each exercise.

Begin using these forms once you have completed the diagnostic workup and have decided on an appropriate Program Plan.

The exercises that you will be using are listed in the left hand column of the **Sequence of Progress** form. There are two columns which will be used to record treatment results: **Level of Exercise** and **# of Reps** achieved in that session. In the first column, Level of Exercise, record which "Step" you are working on in each exercise. For example, if on May 12, 2002, you determined that the individual's **Highest level before failure** was to be able to successfully blow Horn #6, 17 times, this would be where you would begin his/her treatment program. The next week, on May 17, 2002, the individual was able to blow Horn #6, 21 times successfully. This information would be recorded as follows:

Name: Client A

Dates of Service	5/12/02		5/17/02	
PHONATION	Level of Exercise	# of Reps	Level of Exercise	# of Reps
Horn Blowing	#6	17	#6	21

NOTE: Record only the **Highest level before failure**

In the ideal world exercises are practiced daily. In the real world this may not be possible. Exercise physiology tells us that in order to improve muscle strength and endurance exercises must be practiced a minimum of three times per week.

SEQUENCE OF PROGRESS

Name: **Record the date and any changes for each activity.**

Dates of Service												
EXERCISES	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps
Tongue Depressor for Lip Closure												
Button Pull												
Bubble Blowing Hierarchy												
Horn Blowing Hierarchy												
Straw Drinking Hierarchy												
Dates of Service												
EXERCISES	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps
Tongue Depressor for Lip Closure												
Button Pull												
Bubble Blowing Hierarchy												
Horn Blowing Hierarchy												
Straw Drinking Hierarchy												

CHAPTER 12

Conclusion

You have now completed the exercise component of this program. If you made it through all of the exercises, the individual should be able to manage his/her saliva. For some individuals, completion of the exercises correlates with total control of saliva in all environmental situations; for others you may have to include one final task.

The final task will be to transition this control into everyday life situations. For example, you may find that the individual can control his/her saliva when sitting in a stable posture but loses that control when involved in a fine motor task such as coloring or writing or when performing a gross motor task such as walking. Watching a video or a television program may also be a time when the old habit of open mouth posture can impact negatively on the newly mastered skill of controlling saliva. In both cases, the muscles are strong enough to control the saliva but old habits sometimes interfere. After you have identified the environmental situations that are problematic, use the following suggestions to help you make this transition:

1. **Fine Motor Tasks with Lip Closure**: A complete description of this exercise can be found in "*Oral-Motor Exercises for Speech Clarity.*"

> **NOTE:** This same activity can be used with individuals who have difficulty transitioning saliva control to gross motor tasks. If you are going to begin with the tongue depressor make sure to monitor the individual closely to avoid accidents.
>
> a. Place a single tongue depressor between the individual's lips as described in the Tongue Depressor for Lip Closure exercise. Use a timer to establish the criteria number of minutes to achieve success at each level. Begin with one minute on the timer. Instruct the individual to perform the targeted fine motor task (i.e., coloring, writing, assembling a jigsaw puzzle, etc.) while keeping the tongue depressor between his/her lips for one minute. The presence of the tongue depressor is the transition tool designed to assist the individual in remembering to keep the lips closed. Increase the number of targeted minutes by one as success is mastered. Work up to five minutes using the tongue depressor. Success is identified as complete saliva control throughout the completion of the fine motor task.
>
> b. Cut out a rectangular piece of paper three inches by one inch. Repeat the technique described above using the lightweight piece of paper instead of the tongue depressor.
>
> c. Cut out a rectangular piece of paper two inches by one inch. Repeat the technique described above using the smaller piece of lightweight paper.
>
> d. Cut out a square piece of paper one inch by one inch. Repeat the technique described above using the smaller piece of lightweight paper.

2. **Video Watching:** Have the individual chose a favorite video or movie. Place the individual in front of the television and instruct him/her to keep the lips closed while watching the video. Use the

television remote control to assist in this procedure. Turn on the video. As the individual is watching the video you will be watching the individual. If his/her mouth opens, use the remote to turn off the television. Instruct the individual to keep the lips closed as you turn the video back on. Continue to monitor lip closure. If the lips open, turn off the television. The association of lip closure with the ability to watch the video is the transition tool designed to assist the individual in remembering to keep the lips closed. Begin with one minute. Increase the number of targeted minutes by one as success is mastered. Work up to 30 minutes. Success is identified as complete saliva control throughout the completion of the task.

> **NOTE:** At the onset of this technique, the individual will only be required to watch the video with lips closed for one minute. Once this one-minute goal is achieved, reward the individual by allowing him/her to finish watching the video independently. It will be important to allow him/her to finish watching the chosen video in subsequent practice sessions as you work towards your goal of 30 minutes with lip closure.

3. **Storytime:** Have the individual chose a favorite book for you to read to him/her. Instruct the individual to keep the lips closed as you read the story. Continue to monitor lip closure; if the lips open stop reading. The association of lip closure with the sound of your voice is the transition tool designed to assist the individual in remembering to keep the lips closed. Begin with one minute. Increase the number of targeted minutes by one as success is mastered. Work up to 30 minutes. Success is identified as complete saliva control throughout the completion of the task.

> **NOTE:** At the onset of this technique the individual will only be required to keep the lips closed for one minute. Once this one-minute goal is achieved, reward the individual by finishing the story. It will be important to remember to finish the chosen story in subsequent practice sessions as you work towards your goal of 30 minutes with lip closure.

O.K., that should do it. You did a great job!

As my Mom used to say,
"Let's go out and have an ice-cream sundae!"

GLOSSARY

Adding weight: Applying pressure to a given muscle or muscle group to the degree that it increases awareness but does not move the muscle.

Awareness: The mental picture of one's own oral parts, where they are, how they interrelate, and how they move.

Body posture: The ability to maintain or regain equilibrium. It is a dynamic process underlying postural control and controlled movement.

Compensatory: Any pattern that is used to substitute for a movement that is not physiologically possible.

Dissociation: The separation of movement based upon strength/stability in one or more muscle groups.

Drooling: The inability or reduced ability to organize saliva and to propel it back over the tongue to position it for swallowing. Further described as the loss of saliva from the front or sides of the lips. The severity of the drooling behavior is based upon skill levels in each of the following areas: 1) Body Posture, 2) Sensory Awareness, 3) Lip Closure and 4) Saliva Retraction. In rare cases drooling is secondary to an overproduction of saliva as a result of a medical condition or of swallowing deficits (i.e., dysphagia).

Dysphagia: Refers to an umbrella of swallowing disorders characterized by difficulties with any of the following: chewing, bolus collection, oral-preparation of a swallow and/or pharyngeal phase of a swallow. Oral dysphagia is typically diagnosed via oral-motor assessment. Pharyngeal dysphagia is typically diagnosed through radiographic imaging such as a Modified Barium Swallow Study.

Eight levels of tongue grading: The eight segmented areas of the tongue that must have strength/stability to allow for dissociation of lingual movements for normal feeding skill development, oral exercise completion and standard speech clarity.

Fine, fine motor: Refers to the movement of the small muscles of the velum, jaw, lips and tongue.

Fine motor: Use of the muscles of the hand, as well as the coordination of the eyes and hand together to manipulate an object.

Grading: The controlled segmentation of movement based upon strength, stability and dissociation. The ability to control movement at any point through the range of movement.

Gross motor: Quality, strength and flexibility of active large muscle movement including coordination, balance and locomotion.

High tone: The increase of supportive muscle tone, usually with reduced mobility at the joints: the person with high muscle tone seems "tight and fixed."

Hyposensitivity: An inability or reduced ability to react to sensory input.

Isometric resistance: Adding a forward pull that is just strong enough to keep the muscle from losing its hold on an object.

Lip block: Any item that inhibits the lips from moving forward onto the straw. The lip block is designed to inhibit lingual suckling and biting.

Lip closure: The ability to have both lips meet at midline to seal off the oral cavity.

Low tone: The lack or reduction of supportive muscle tone, usually with increased mobility at the joints; the person with low muscle tone seems "loose and floppy."

Motor planning: The ability to conceive of, organize, sequence, and carry out an unfamiliar and complex body movement in a coordinated manner.

Muscle memory: The habit that makes the movement automatic.

Myringotomy surgery: A surgical procedure designed to balance air pressure between the middle ear and the outer ear. More commonly referred to as "tube insertion."

Natural bite: The optimal bite alignment that can be achieved with the existing jaw and dental structures.

NDT: Neuro-Developmental Technique: A field of study that teaches that development follows a hierarchy of movement based upon the establishment of skills at sequential levels within the body. A technique aimed at the inhibition of abnormal reflex activity and the facilitation of normal patterns.

Neuromuscular: Relating to the relationship of nerves and muscles.

Obligatory mouth breathing: The reliance upon inhalation and exhalation of air for breathing through the mouth, secondary to blockage or air passage restrictions in the nasal cavity.

Optimal body posture: The best placement of one's head, limbs and trunk that the individual can achieve with his/her existing skeletal structure and muscular skills levels.

Placement: The ability to position an articulator in the proper positon within the oral cavity in preparation for speech sound production.

Repetitive draws: Consecutive repetitions of suck-swallow-breathe via straw drinking. Success is measured by lip protrusion, jaw stabilization, and tongue retraction in the absence of tongue thrusting or suckling.

Reverse suckle swallow: See "tongue thrust."

Reverse swallow: See "tongue thrust."

Saliva retraction: The ability to organize saliva and to propel it back over the tongue to position it for swallowing.

Sensory awareness: The normal neurological process of taking in information from one's own body and environment through the senses.

Single sips: An isolated swallow with one deglutition of a liquid or thickened liquid via a straw or cup.

Stable body posture: A stable posture is described as one that facilitates a 90-degree angle in the pelvis, knees, ankles and chin.

Strength: The muscle endurance necessary to achieve and maintain an articulator in the proper positon or positions within the oral cavity during speech sound production.

Suckle swallow: A typical swallowing pattern from birth to approximately 8 to 12 months of age, characterized by a protrusion/retraction pattern without jaw-lip-tongue dissociation. The tongue, bottom lip and jaw move as one unit in an up/down pattern as the entire tongue blade elevates in a horizontal motion with the hard palate in an effort to draw liquid out of a nipple. This helps protect the infant's airway while drinking as the posterior section of the tongue humps toward the soft palate in an effort to slow down liquids entering the pharyngeal port.

Supine: Lying with the face upwards.

Teeth erupt: The time in which it takes a tooth to break through the skin of the gum ridge.

Therapeutic straw drinking: A therapeutic approach, developed by Sara Rosenfeld-Johnson, which uses a hierarchy of straws to address the goals of improving tongue retraction/grading, lip rounding, feeding skills, and the development of the standard speech sound production.

Tongue thrust: An atypical swallowing pattern characterized by: posterior tongue depression, midsection contact with the lateral margins of the top molar ridge, and tongue tip protrusion/interdentalization. This is the opposite of a functional swallow characterized by posterior tongue elevation, midsection suction with the hard palate, and tongue tip elevation. Tongue thrust may be secondary to enlarged tonsils/adenoids, thumb sucking, prolonged bottle usage, chronic otitis media/sinusitis, or may be habitual from an unknown source. Tongue thrust has adverse affects on dental alignment and speech production. This pattern should resolve with the introduction of straw and/or cup drinking, as the child develops muscle-memory, tone and dissociation.

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Diagnostic Check Sheet

Name:_____ **Date:** _____
Address:_____ **Birthdate:**_____
_____ **Age:**_____
Phone: _____ **Parents:** _____

1. Severity of Drooling: (Place a check in the box that best describes the severity of drooling.)

☐ Mild ☐ Moderate ☐ Severe ☐ Profuse

☐ Never Drools ☐ Frequently Drools ☐ Occasionally Drools ☐ Constantly Drools

2. Areas of Deficit: (Place a check in each box that describes an area of deficit. (Refer to: "How do we begin?" on page 8.)

☐ Body Posture ☐ Sensory Awareness ☐ Lip Closure ☐ Saliva Retraction

3. Description of Deficit: Describe the deficit in each area that was checked in #2.

Body Posture _____
_____
_____

Sensory Awareness: If tolerance to touch is accepted, place a check in the "Yes" column next to the appropriate oral structure. If tolerance is not achieved or the individual indicates that he or she is uncomfortable with the touch location, place a checkmark in the "No" column next to the appropriate oral structure.

Oral Structure		Toothette Yes	Toothette No	Toothette with Vibration Yes	Toothette with Vibration No
Lips:	Top				
	Bottom				
Gum Ridges:	Right				
	Left				
Buccal Cavity:	Right				
	Left				
Surface of the Tongue:	Right				
	Left				
Lateral Margins of the Tongue:	Right				
	Left				
Hard Palate:	Right				
	Left				

Lip Closure: Place a check in each box that describes an area of deficit. (Refer to: "Lip Closure" on page 12.)

☐ Obligatory Mouth Breathing ☐ Lip Weakness ☐ Jaw Weakness ☐ Tongue Protrusion

Saliva Retraction: Place a check in each box that describes an area of deficit. (Refer to: "Saliva Retraction" on page 13.)

☐ Inability to Retract Saliva ☐ Reduced Ability to Retract Saliva

☐ Suckle Swallow ☐ Reverse Swallow/Tongue Thrust

4. Program Plan: Place a check in each box that represents the Oral-Motor techniques that are appropriate for this individual. (Refer to: "Establishing an Oral-Motor Exercise Program Plan" on page 16.)

☐ Body Posture ☐ Sensory Program ☐ Oral-Motor Exercises
☐ TalkTools® Bubble Blowing Hierarchy ☐ Tongue Depressor for Lip Closure ☐ Bite Blocks #2 -#3
☐ TalkTools® Horn Blowing Hierarchy ☐ TalkTools® Straw Hierarchy ☐ Button Pull

SEQUENCE OF PROGRSS

Name: **Record the date and any changes for each activity.**

Dates of Service												
EXERCISES	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps
Tongue Depressor for Lip Closure												
Button Pull												
Bubble Blowing Hierarchy												
Horn Blowing Hierarchy												
Straw Drinking Hierarchy												
Dates of Service												
EXERCISE	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps	Level of Exercise	# of Reps
Tongue Depressor for Lip Closure												
Button Pull												
Bubble Blowing Hierarchy												
Horn Blowing Hierarchy												
Straw Drinking Hierarchy												

Sara Rosenfeld-Johnson, MS, CCC-SLP is an internationally known speaker on the subject of Oral Placement Therapy (OPT). She specializes in the diagnosis and treatment of muscle-based disorders as related to speech clarity and feeding issues. In 1995, Sara founded TalkTools® as a speakers bureau and source for Oral Placement Therapy (OPT) and therapy tools. She has held seminars throughout the United States, as well as in Canada, Europe, Australia, Africa, Latin America and Asia. Over the past 40 years, she has worked in public schools, hospitals, private practice and child development programs. Ms. Rosenfeld-Johnson is the author of Oral Placement Therapy for Speech Clarity and Feeding, Assessment and Treatment of the Jaw, OPT for /s/ and /z/, A Therapist's Guide to Rehabilitative Feeding and Speech Techniques for Teens and Adults, The HOMEWORK Book, the Drooling Remediation Program, and many other educational materials.

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