<table>
<thead>
<tr>
<th>Technique</th>
<th>Rationale</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chin and Lip Support</td>
<td>To improve jaw/lip stability</td>
<td>• Chin cupping: make a bowl shape with the entire hand and place it under the child’s jaw with the thumb directly under the lower lip (see Figure 4-7).&lt;br&gt;• Chin support with two fingers: place the index finger directly below the bottom lip and put the middle finger directly under the mandible. Place the thumb vertically along the side of the face.&lt;br&gt;• Chin and lip support with three fingers: place thumb directly below the bottom lip, with middle and index fingers under the chin.</td>
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<tr>
<td>Jaw and Cheek Support</td>
<td>To improve jaw/check stability</td>
<td>• Place thumb under the chin with the index finger and middle finger on either side of the mouth (see Figure 4-8).&lt;br&gt;• During bottle feeding, place middle finger and thumb on the infant’s cheeks and apply firm support (see Figure 4-9).</td>
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<tr>
<td>Lingual Stroking</td>
<td>To increase tongue strength</td>
<td>• Place finger, spinning sucker toy, tongue blade, etc. on the midline of the tongue.&lt;br&gt;• Stroke the tongue toward the front applying downward pressure.&lt;br&gt;• Use quick, unpredictable movements&lt;br&gt;• Tap to increase tone; use deep pressure to decrease tone.</td>
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<tr>
<td>Facial Molding</td>
<td>To relax the muscles of the cheek prior to feeding</td>
<td>• Use fingers or a warm, wet, or dry washcloth.&lt;br&gt;• Begin at the periphery of the face (e.g., by the ears).&lt;br&gt;• Work toward the chin and cheek, applying firm pressure toward the lip to obtain a closed mouth position.&lt;br&gt;• Continue until you reach the mouth.</td>
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<tr>
<td>Cheek Tapping</td>
<td>To improve the infant/child’s tone</td>
<td>• Approximate the heels of your hand in a V position and cup the child’s face.&lt;br&gt;• Tap both sides of the child/infant’s cheeks using firm but gentle pressure (if cheeks become red, adjust the pressure).&lt;br&gt;• Do both cheeks simultaneously or alternately.&lt;br&gt;• Do 10–20 times.&lt;br&gt;• Use a NUK® toothbrush and roll it down the side of the cheek from the inside.</td>
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<tr>
<td>Quick Stretch</td>
<td>To improve muscle tone</td>
<td>• Utilize your index and middle finger.&lt;br&gt;• Apply firm pressure with your fingers over the corner of child’s lips and draw your fingers toward the child’s cheeks.&lt;br&gt;• Apply firm pressure to the masseter and buccinator muscles and draw your fingers toward the child’s ears.</td>
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<tr>
<td>Lip support/closure:</td>
<td></td>
<td>1. Start just above the upper lip. Gently press and follow the orbicularis oris muscle around the mouth.</td>
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<td></td>
<td></td>
<td>2. Next, use your fingers to manually close upper and lower lips or pull the cheeks forward.</td>
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<tr>
<td>Thermal Stimulation</td>
<td>Increase sensitivity</td>
<td>• For older children:</td>
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<tr>
<td></td>
<td></td>
<td>1. Prior to feeding an infant, obtain a size 00 laryngeal mirror or a small metal spoon.</td>
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<tr>
<td></td>
<td></td>
<td>2. Chill the mirror/spoon in a cup of ice (use sterile ice chips if the infant is NPO/has an absent swallow).</td>
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<td></td>
<td></td>
<td>3. Stroke the soft palate and anterior faucial pillars. Go slowly to avoid eliciting the gag reflex. If possible, allow the child to place the spoon in his or her mouth.</td>
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<td></td>
<td></td>
<td>4. Do 10–15 times and instruct the child to swallow.</td>
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<td>• For younger children:</td>
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<tr>
<td></td>
<td></td>
<td>1. Cold pacifier: drill a hole in the back side of the pacifier, fill with water, allow to freeze, and place pacifier in the baby's mouth.</td>
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<tr>
<td></td>
<td></td>
<td>Remove the pacifier before the ice melts.</td>
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<tr>
<td>Negative Pressure</td>
<td>To promote a stronger lip/tongue seal for sucking</td>
<td>• Allow the baby to begin sucking on the bottle.</td>
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<tr>
<td></td>
<td></td>
<td>• Gently begin to pull the bottle to the anterior part of the mouth while keeping the bottle in the infant's mouth.</td>
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</table>

Developing Chewing Skills

WHO? Infants/children who have neurological impairments, infants/children with GERD, infants/children transitioning from tube to oral feedings, infants/children with sensory-based feeding problems, and any infant who is having trouble moving from pureed to solid foods or refuses foods with texture (i.e., meats, vegetables, etc.).
WHAT? Assisting the child learning to masticate and manipulate new food textures without choking.
WHY? To expand the child's food repertoire and develop normal feeding skills.

- Start by placing new soft solid textures (i.e., food strips of fruit, crackers, cereal) inside gauze that is tied tightly together with dental floss so you can pull it out if needed (sham bolus). Place food anteriorly on the tongue tip so the child can identify the food. Next, move the food laterally (on molars) to encourage tongue lateralization.
- Wrap chewy solid food strips (i.e., fruit snacks, meat, raw vegetables) inside gauze that is tied tightly together with dental floss. Place food laterally in mouth.
- Use external jaw support to assist with lip closure and graded jaw movements.
- Experiment with different food flavors (spicy, tart, sweet, sour) and temperatures (very cold to warm) to increase sensory input.
- Stroke up/down inside the cheek to promote chewing behaviors.
- Once the child is accepting and lateralizing food in gauze from midline of tongue to molars, introduce soft, soluble solids (i.e., crackers, cereal). Go slowly.
- Work on biting by placing cracker between lateral incisors and alternating sides. In addition to increasing biting stimulation, this may encourage the tongue to cross midline.
2. Expand foods within consistencies first and then begin to gradually increase or decrease the food texture to expand the food repertoire across categories. The following is a general description of various food consistencies.

- **Thin Liquids**
  - Milk
  - Water
  - Carbonated water

- **Thickened Liquids**
  - Applesauce in juice or milk
  - Milkshakes
  - Pudding in milk
  - Yogurt in milk
  - Juices with gelatin added

- **Strained/Pureed Foods**
  - Solid, smooth foods that are pureed/blenderized
  - Commercially available infant foods (avoid multiple consistencies)

- **Thickened Pureed Foods**
  - Smooth but thick without lumps
  - Gradually add crumbs from various crackers and cookies, bran flakes, wheat germ, and so forth
  - Be aware of food allergies
  - Add pureed fruit to juices

- **Lumpy Foods**
  - Soft noodles, rice, canned pasta, mashed fruit (Stage 3 infant food)

- **Mashed Table Foods**

- **Chopped Solid Foods**
  - Banana chunks, macaroni and cheese, chopped meatloaf

- **Whole Solids/Table Food**
Altering the Consistency, Temperature, Volume, and Taste of Food

**WHO?** Infants/children who have a neurological impairment, infants with GERD, infants with a weak suck, infants/children transitioning from tube to oral feedings, and infants/children with sensory-based feeding problems.

**WHAT?** Changing food presentation.

**WHY?** If the child cannot cognitively participate in the feeding process, altering the presentation may compensate for the deficits and allow safe oral feeding. These techniques may help to decrease aspiration. For children transitioning to tube feedings, this helps to broaden the child's food repertoire and establish normal feeding development.

**HOW?** See below.

**Volume**

1. Increased size of bites may lead to a heightened sensory awareness.
2. Small size bites are generally indicated for oral stage deficiencies.
3. Document the most efficient and safe method during the VFSS.

**Temperature**

1. Cold temperature can be used as alerting skills and provide a better oral transit time (Arvedson & Brodsky, 1993).
2. Avoid room temperature foods, especially liquids, as these provide the least sensory stimulation and may be more easily aspirated.

**Taste**

1. Allow the child to taste strong flavors such as spicy, sour, or tangy.
2. Using a toothette, small NUK® toothbrush, gloved finger, and so forth, provide small tastes of different flavors (i.e., peppermint, salsa, lemon, salt, ketchup, pickle juice, barbeque sauce, hot sauces, cinnamon, nutmeg, etc.).

**Consistency**

1. Make a list of the food types and consistencies that the child prefers. Work with the parents to determine what other foods within these categories can be introduced. For example, if the child has a preference for pureed consistencies limited to applesauce and creamed wheat cereal, work with the family or caregiver to determine what other foods within this category can be introduced next (e.g., pudding).
ly to the center and front of the infant/child's tongue. Avoid eliciting a
gag. (See Figure 4-3.)

3. If possible, allow the child to hold your hand with the stimulus (toothette, NUK® toothbrush, soft toy) or use his or her own finger with
your help.

4. If the child does gag, remove the stimulus and close the child's mouth.

5. Using a stimulus other than your finger, move from the center of the
tongue to the anterior and lateral teeth/gums.

6. Give frequent breaks, because intraoral stimulation increases saliva
production and the child will need to swallow more often.

Figure 4-3. An example of one way to reduce oral aversions. This NUK® is pressed firmly
decrease tonicity) or tapped gently (increase tonicity) from the tongue tip, working back slow-
ly to the center and front of the child's tongue.
Reducing Oral Aversions

**WHO?** Infants/children with oral hypersensitivity (OFF, NOTT), infants/children who have been previously tube fed, infants/children with a hyperactive gag, and premature infants.

**WHAT?** Reducing oral aversions for feeding.

**WHY?** To decrease the infant/child's oral sensitivity, increase tolerance of touch, establish positive oral experiences, and establish trust that is necessary for mealtime success.

**HOW?** From Alexander et al., 1999; Morris, 1999b; Schuberth, 1994.

Starting points for children will vary. Some will not allow you near the facial area and others will have trouble tolerating external stimuli inside the oral cavity. If the infant/child has high muscle tone, carry out these techniques with deep firm pressure. If an infant has low muscle tone proceed with gentle tapping.

**Starting Point Outside the Oral Cavity**

1. Begin by giving firm, deep pressure or patting to the part of the infant's body that is least sensitive. You may have to start with the hands and move up to the arms and shoulders before you can touch the face. Establish positive nonfeeding sensory experiences with the child. Therapeutic touch (pediatric massage) can be focused on the whole body, not just the mouth. This is especially important for the child who has had negative oral experiences. Follow the child's lead regarding what "feels good" and what does not. In this way, you establish a trust with the child.

2. Work your way gradually toward the face, continuing with the deep, firm pressure or patting that is rhythmic and predictable. This will increase the child's tolerance to being touched.

3. When touch to the face is tolerated, start from the farthest point such as the ears or forehead and work your way toward the lips.

4. If the child becomes tense and uncomfortable throughout this progression, stop and reestablish a comfort level.

**Starting Point Within the Oral Cavity**

1. Apply firm pressure to the outer part of the upper gum. Begin at midline and stroke in an anterior-posterior direction. Allow the child's cues to determine the rate and range of the stroking. Next, move to the lower gum and hard palate.

2. Using your finger, a familiar toy, tongue blade, NUK®, or spoon, press firmly (for children with high muscle tone) or tap gently (for children with low muscle tone) from the tongue tip, working your way back slow-
Oral Stimulation Program

**WHO?**  
Children who are NPO.

**WHAT?**  
Stimulating the face and oral cavity with different textures, touch pressures, and temperatures.

**WHY?**  
Providing the infant with oral stimulation helps to develop and/or maintain normal feeding development. The child will decrease her or his oral aversive behaviors when oral feeding is introduced.

**HOW?**  
From Arvedson & Brodsky, 1993; Klein & Delaney, 1994; Wolf & Glass, 1992. See Figure 4–2.

- Provide the infant/child with opportunities to orally explore a variety of toys.
- Encourage the infant to suck on fingers and/or a pacifier during tube feedings.
- Rub the child's face with various textures (soft/smooth–stiff/rough).
- Use a finger to apply firm pressure to the gums, tongue, and teeth (if applicable). Start at midline and work your way back. Repeat 3–4 times.
- Provide the infant/child opportunities for NNS. In doing this you provide an infant opportunities to suck on an object (finger or pacifier).
- Provide the infant with a toothette, small NUK® toothbrush, or gloved finger dipped in water, formula, or breast milk. Apply pressure downward, and then apply a finger stroke. Repeat if the infant tolerates this and has a positive response.
- Modifying oral motor tone with sensorimotor techniques. For children with high muscle tone, use a soft cloth to apply deep, firm, rhythmic pressure around the mouth. Hold the child's cheek between your index and middle finger and shake the cheeks on both sides. This improves facial elongation. For children with low muscle tone, use light, rhythmic tapping and vibration to the cheeks. For either case, diagonal shaking of the tongue is reported to improve graded tongue movements and elongation. Firm, rhythmic tapping to the dorsum of the tongue reportedly improves tongue cupping (Alexander, Arvedson, Dorsey, & Pinder 1999).
When the child begins self-feeding, the spoon handle should be appropriate to the size of the child's hand (typically wide, thick, and short).

The placement and pressure of the spoon in the child's mouth can also facilitate successful feeding.

**Spoon Placement**

- **Center of tongue with downward pressure.**
- **Center of tongue with downward and inward pressure.**
- **Center of tongue, no pressure.**
- **Alternating sides of tongue with light pressure.**
- **Side of spoon presented to lips.**

**Effect**

- Facilitates sucking movements and may help with posterior transit of the bolus.
- Encourages tongue movements up and down and reduces tongue thrusting.
- Promotes tongue movements forward and backward.
- Facilitates tongue lateralization and chewing.
- May help with tongue lateralization.