

FEEDING AND PRE-SPEECH CHARACTERISTICS

OBSERVED IN CHILDREN WITH MILD SENSORIMOTOR DISABILITY

Sensorimotor Characteristics

- *Low tone in the trunk with poor postural stability for movement.* Children who experience primary difficulties with low postural tone often compensate for their instability with movements which can reduce the skilled functioning of the oral, respiratory, and phonatory systems. Elevation of the shoulder girdle with increased tension, clenching tension in the jaw, and firm pressing of the tongue against the hard palate are often seen in attempts to provide greater stability for movement. These patterns contribute to tension and poor coordination in the very parts of the body which are required for skilled feeding and speech movements.
- *Sensory processing difficulties.* Children who experience difficulties processing and integrating sensory information often show mild sensorimotor difficulties in feeding and speech. Sensory integrative disorders strongly influence the development of skilled movements of the body and mouth, and make it more difficult for the child to learn new skills through sensory avenues which are affected. Motor planning or apraxic difficulties, if present, make the learning of speech very difficult.
- *Drooling during speech or fine motor activities.* Children who lack trunk stability and/or show incomplete head control frequently drool during activities requiring higher levels of physical control or concentration. Drooling may also be a consequence of poor sensory awareness if the presence of saliva in the mouth which must be swallowed. As drooling occurs, the child may be unaware of the wet face.

Feeding

- *Low tone in the cheeks and lips with poor or inefficient movement during chewing.* This may result in loss of saliva or food from the mouth during eating and drinking. Since the cheeks also assist with placement of food during chewing, the child may have mild difficulties with food transfers for chewing .
- *Low tone in the tongue with poor or inefficient movement during eating and drinking.* This may result in loss of saliva or food from the mouth during eating and drinking. Since the cheeks also assist with placement of food during chewing, the child may have mild difficulties with food transfers for chewing .

Suzanne Evans Morris, Ph.D.
Speech-Language Pathologist
New Visions
1124 Roberts Mountain Road
Faber, Virginia 22938
(804) 361-2285

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- *Low tone in the tongue with poor or inefficient movement during eating and drinking.* The tongue may lack the normal cupped or grooved configuration which makes it easier to move food easily from the front to the back of the mouth. In some children the tongue shows a bunched or humped configuration which makes it very difficult to organize food into a bolus for chewing and swallowing. Food may fall over the sides of the tongue and become lodged in the cheek cavity or even under the tongue.
- *Mild patterns of jaw thrusting or lip retraction.* During excitement or challenging feeding activities the child may show a tendency toward a sudden downward movement of the jaw or a horizontal pull-back or retraction of the lips. These involuntary movements make it much more difficult for the child to develop normal jaw, tongue, and lip movements for feeding and speech.
- *Sensory defensiveness of the body, face, and mouth.* The child responds in a very defensive or “fight-flight” fashion when sensory input to the face or mouth is given by another individual. Touch or other sensory input which children give themselves is often accepted with greater ease. Sensory defensiveness is related to the poor development of sensory discrimination in many children who have general difficulties processing sensory information. These children may have many difficulties with the texture and taste of new foods and often show delays in accepting solid foods in their diet.
- *Poor sensory discrimination or awareness of food in the mouth.* This may be seen as children prolong the normal developmental stage (2 year old) of stuffing the mouth with food. This stuffing may increase the child’s awareness of food and may make it easier for them to organize and swallow solid foods. Some children are unaware that food still remains in the mouth and pieces of food may be squirreled for hours after a meal. Small pieces of food may cause coughing or choking when the child drinks a liquid or the food accidentally falls over the back of the tongue. Poor sensory discrimination can also make the transition to new foods difficult for a child.
- *Poor attending skills during eating, which may result in coughing or choking episodes or increased drooling.* Children who experience difficulty with maintaining their attention during eating may choose to get up from the table and run around while food is still in the mouth. If there are mild difficulties with sensory awareness in the mouth or with swallowing, the child may experience coughing or choking from food falling accidentally over the back of the tongue. Poor attention to sensory details during eating can lead to greater loss of food and liquid from the mouth during eating or drooling after the meal.
- *Delayed development of the ability to drink with the jaw quiet or stabilized.* The child may use an unstabilized up-down movement consistently during drinking. Children begin to develop the ability to stop or stabilize the jaw during drinking between 12-15 months. This is initially done by biting down on the glass. Between 24 and 36 months the child learns to use the closing and opening muscles of the jaw to provide this stability when drinking. This internal stability of the jaw is used by the child primarily when drinking large amounts of liquid rapidly. The normal child and adult may still intermittently use tiny up-down movements of the jaw. However, they have the choice of both strategies. The child with a mild or moderate sensorimotor disability may be limited to only the unstabilized pattern. The child may experience some difficulty with long drinking sequences or may lose liquid while drinking.
- *Delayed development of the ability to suck and swallow with an up-down tongue movement.* During the first 9-12 months the baby uses an in-out suckle-swallow movement of the tongue for drinking and eating soft foods. Gradually the up-down tongue movement of sucking emerges, and it gradually replaces the in-out movement. Tongue-tip elevation during the swallow occurs for most children by the time they are 24 months. This may be mixed with a simple protrusion between the teeth during swallowing into the pre-school years.
- *Delayed development of the ability to use the tongue to move food easily from one side of the mouth to the other during chewing.* The child may have difficulty transferring food from one side to the other or may use the earlier developmental strategy (i.e. 12-18 months) of transferring the food from the side to the middle and then from the middle to the other side. By the time children reach the age of 24 months, they can make this transfer of food from one side to the other with a smooth, sweeping motion without a pause in the middle. Children with mild chewing difficulties often do not like foods such as meat which require a high level of coordination and endurance for chewing.

- *Delayed development of the ability to use the tongue to clean the outside of the mouth.* By 36 months children are able to use a precise sweeping movement of the tip of the tongue to clean food from the upper and lower lips and from both corners of the mouth. Between 24 and 36 months children use aspects of this cleaning movement, but the tongue and jaw move slowly together.
- *Delayed or difficult development of the ability to use the mouth in creative ways to explore the sensory input of food.* Between 18 and 24 months the normally developing child discovers many fun and creative ways of exploring and exploiting the sensory properties of food. The child may stuff the mouth with raisins and then contrast this with a single raisin placed on either side of the mouth. Variations on smacking the lips or blowing bubbles in milk may be discovered and delighted in. These activities are important for the later ability to voluntarily control the mouth for motor-planning activities.
- *Delayed development of motor planning abilities of the mouth during feeding.* Between the ages of 24-36 months children expand on their ability to voluntarily control tongue and lip movements during feeding. If an adult asks the two-year-old to move a raisin from one side of the mouth to the other, the child's tongue may make groping movements and seem unable to figure out how to get the raisin to the other side. If the adult asks a three-year-old to do the same task, the child moves the raisin to the other side with more difficulty. The younger child is able to move food from one side of the mouth to the other spontaneously during eating, and is usually able to show the adult where the raisin is supposed to go. The lack of execution is, thus, related to motor planning abilities. During this same age period (i.e. 2-3 years) the child learns to volitionally use the tongue to remove food stuck on different places on the lips, and to execute other more playful sensorimotor strategies such as blowing bubbles through a straw and spitting water another child.
- *Articulation errors which are often related to delays or limitations in feeding patterns.* Many articulatory errors made by young children with feeding difficulties or delays are similar to the movements used in feeding. For example, when a child does not close the lips to clean the spoon or pulls the lips slightly back during eating or drinking, errors in bilabial (two-lips) sounds such as "m", "p", or "b" may consist of poor lip contact or the use of a lip-teeth contact. Poor central grooving of the tongue during sucking may lead to tongue grooving errors ("sloppy s") when the child attempts to produce an "s", "z" or "sh" sound. Poor elevation of the tongue tip or tongue protrusion during swallowing may increase the probability that the child will use a protrusion of the tongue during speech.
- *Articulation errors which are often related to poor sensorimotor awareness and discrimination during speech.* Many children who have mild feeding difficulties as a result of the poor awareness and processing of the sensory information during feeding will show similar difficulties for speech. Speech production may lack precision and articulation errors may be highly variable. Speech intelligibility may be worse when the child is talking rapidly.
- *Poor separation of tongue and lip movement from jaw movement during speech.* The tongue and lips are connected anatomically with the jaw. Initially the baby learns to move the tongue and jaw together and the lips and jaw together. Gradually movement becomes refined and the child has developed enough skill to use tongue and lip movements which are independent of jaw movement. The combined movements, however, may be retained in feeding and / or speech for some children. Since jaw movement is much slower and less precise than either tongue or lip movement, the speech of children who have not developed the separation will be slower or less skillful than normal.

PreSpeech and Speech

- *Delayed onset of babbling.* Many children with mild sensorimotor difficulties do not develop babbling at the same time as other babies. Rather than putting together a wide variety of consonant and vowel combinations during the 6-9 month age period, they remain silent babies. When they do begin putting sounds together, they may use a very limited number of consonants (i.e. "ba-ba-

- *Difficulty with the imitation of non-speech movements of the mouth.* The child may have difficulty imitating movements such as elevation, depression, or lateralization of the tongue; smacking, rounding, or spreading movements of the lips; and varying degrees of opening and closing movements of the jaw.
- *Motor planning disorders or developmental dyspraxia.* The child whose speech delays are related to developmental dyspraxia will usually show normal or slightly delayed feeding skills. However, movements of the mouth which are observed during feeding, cannot be reproduced at a voluntary level for speech. These youngsters often have an early history of delayed onset of babbling and difficulty transitioning to solid foods. They may remain “picky eaters” with limited food preferences .