

Hard Facts to Swallow

Therapists working with feeding disorders

By Jennifer Pilling, MA

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While swallowing may seem second nature to most of us, it is actually quite a complicated process that, if not properly executed, causes feeding problems and sometimes aspiration. Approximately 25 processes take place to move food and saliva from the mouth down to the esophagus.

Eating and swallowing have been found to be complex neuromuscular activities consisting mainly of three phases: oral, pharyngeal and esophageal, each of which is controlled by a different neurological mechanism. The oral phase, which is entirely voluntary, is mainly controlled by the medial temporal lobes and limbic system of the cerebral cortex with contributions from the motor cortex and other cortical areas. The pharyngeal swallow is started by the oral phase and subsequently is coordinated by the swallowing center in the medulla oblongata and pons, a reflex that is initiated by touch receptors in the pharynx as a bolus of food is pushed to the back of the mouth by the tongue.

However, the swallowing process is only as strong as its properly coordinated parts. For example, the oropharynx is a shared medium for breathing and swallowing, which our reflexes control to ensure that breathing is suspended during swallowing. If swallowing does not occur properly – that is, if the nerves and muscles that control the process fail or become out of sync at any point along the way – patients express several reactions including difficulty initiating swallowing, nasal regurgitation, frequent coughing, and/or choking immediately after swallowing. Besides the obvious effect of not being able to get the food patients need to live, dysphagia can also lead to repeated occurrences of liquids or solids lodging in the lungs.

Behind the Problem

Because the process of swallowing is reflexive, conditions that affect neurologic function often trigger difficulties in adults including Parkinson disease, strokes, head injuries, late stage Alzheimer's disease, and certain kinds of cancer. These disorders and conditions usually develop in adulthood and most often affect either the patient's ability to remember how to perform the task of chewing and swallowing, or result in muscle weakness. In both instances, rehabilitation of the muscle system is required to re-teach the feeding process.

Children may suffer from swallowing and feeding disorders due to head or neck abnormalities, cleft lip or palate, conditions affecting the airway, premature birth, or Gastroesophageal reflux Disease (GERD). Other disorders that affect motor control such as neuromuscular or neurological disorders like cerebral palsy, Moebius Syndrome, or children with developmental motor delays often associated with low tone such as Down Syndrome, 5P- Syndrome, or ASD can also result swallowing malfunction.



Some children, who are otherwise healthy but may not be able to eat initially by either bottle or breastfeeding, don't have the initial opportunities to develop their oral motor coordination for feeding. These children often miss out on the sensory aspects of feeding time and often develop sensory aversions to touch, texture, and taste early on, thereby causing a trickle down effect, creating greater mismanagement or avoidances of foods later on. In fact, all children affected by feeding difficulty often develop an aversion to different foods, which also plays a role in how they are treated by both dietitians and speech pathologists.

Collaborating for a Cure

Speech pathologists and dietitians both play an important role in treating patients with the complications of swallowing disorders and the resulting difficulties in feeding. Though speech pathologists take the more hands-on responsibilities, dietitians dictate what should be fed and under what circumstances. In addition, speech pathologists are more interested in diagnosing the problem and working to rectify what is going wrong during the process of swallowing, while dietitians consult and create guidelines to make sure the patient is receiving the proper level of nutrition to stay healthy.

Renee Roy Hill, CCC-SLP, an oral placement speech and feeding specialist at Vail, Ariz.-based Crossroads Therapy Clinic, notes that there are many methods speech therapists learn on how to assess and treat feeding disorders.

For children, the evaluation process should always include five steps to determine treatment. First, the speech pathologist must review the full medical history of the patient. This leads to acquiring a detailed developmental feeding history which can often give significant information on when a child's feeding difficulty began.

An oral-motor assessment looking at the skill of the jaw, lips, tongue, and respiratory system outside of the feeding process determines if they have the general strength, dissociation, and coordination of the muscles to manage food. An oral sensory assessment helps the speech pathologist to better understand the child's preferences or aversions to taste, texture, and temperature which will be helpful as the child begins to feed. Lastly, the speech pathologist observes the child eating any food textures he or she currently eats.



In adults, the cause is often much more obvious, as feeding disorders are most likely due to known medical occurrences (such as stroke) or diagnosed disorders (such as Alzheimer's or Parkinson's disease). However, depending on the underlying cause, the speech pathologist still has to determine exactly what is going on in the process of swallowing to determine treatment.

In both cases, the speech pathologist will try to feed the patient with foods of different consistencies and liquids by various means including bottles, cups, or straws and observe for problems with muscle weakness, drooling, coughing, or regurgitation. From this evaluation, the speech pathologist recommends and administers feeding approaches for those affected by swallowing disorders or dysphagia.

"Once all the information is obtained and synthesized, only then can we better understand all the factors that may affect the child's feeding disorder," says Hill.

Dietitian [Kathy Warwick, RD/CDE](#), at the Professional Nutrition Consultants, LLC in Jackson, Miss., explains that the role of the dietitian in this process is to ensure that during the speech pathologist's efforts to help a patient to regain functionality, the patient is receiving a balanced and healthy diet to support the therapy and any underlying medical conditions. Poor diet can lead to reduced immune competence, which, depending on the patient's other health issues, can have dire consequences. In a sense, the dietitian develops the framework for the therapeutic plan once the problem has been identified.

Warwick explains, "From the dietitian's standpoint, issues with dysphagia can lead to malnutrition, dehydration, and weight loss leaving clients with poor quality of life and susceptible to infections and disability."

Dietitians play an important role in categorizing the diet terminology that speech pathologists use in feeding methods. This helps create the framework the speech pathologist works with when introducing foods and eating methods to their patients.

Obstacles in the Road

"In 2002, the American Dietetic Association recognized a problem with dysphagia diet terminology often led to confusion among health professionals," says Warwick. As a result, the National Dysphagia Diet was established to standardize the language associated with different food and liquid consistencies.

Because food aversion tends to be a barrier for children especially, dietitians sometimes need to be creative when considering a diet specific to what the speech pathologist deems to be the problem. As a result, various diets have been recommended, with some alterations to account for specific needs of the patient.

- **National Dysphagia Diet 1** (Dysphagia Pureed) is described as foods with pudding-like consistency that are smooth or pureed without lumps. Gelatin, fruited yogurt, peanut butter, scrambled, fried or hard cooked eggs are specifically not included in this diet; however, cottage cheese may be prepared in a blender, and tender meats may be pureed with added broth or milk to achieve the proper consistency. A version of this diet is called "Dysphagia Mixed," which may be a pureed diet as part of National Dysphagia Diet 1 with one mechanically altered item as determined appropriate by the speech therapist.
- **National Dysphagia Diet 2** (Dysphagia Mechanically Altered) includes foods that are moist and soft in texture such as tender ground beef or finely diced meats, soft cooked vegetables, soft ripe or canned fruit, and some moistened cereals. Scrambled eggs are allowed, but bread, dry cake, rice, cheese cubes, corn, or peas are restricted from this diet. A slightly altered version of this, "Mechanical Soft," does allow bread, cake, and rice.
- **National Dysphagia Diet 3**, or "Dysphagia Advanced," allows for most regular foods except hard sticky or crunchy items, hard fruit and vegetables, nuts, and seeds. Bread, rice, and cake as well as finely shredded lettuce with tender moist meats are allowed.

Liquids can also pose a problem for patients. As some of the complications of swallowing cause patients to take food or liquids "down the wrong tube" or may even cause them to regurgitate nasally, the speech pathologist must also evaluate the best viscosity of liquids for the patient to ensure safe swallowing. The National Dysphagia Diet Task Force recommends the following guidelines in terms of viscosity: spoon-thick (thin pudding), honey-like, nectar-like, thin liquids, jello, ice cream, and other like substances.

"By standardizing the language," says Warwick, "all healthcare professionals can coordinate the care of those with dysphagia for best results."



Challenges to treatment don't just lie on the shoulders of the dietitian. Hill explains that parents are vital in the rehabilitation of feeding disorders. "It is the therapist's responsibility for the

parents to fully understand their child's disorder and be a part of the team. In most situations, the therapist will only see the child one to three times per week, therefore the parent must be willing to carry over the feeding therapy plan to the home. If our parents do not fully understand why we are addressing certain issues affecting feeding, they may be less likely to work at home."

The most challenging factor in treatment for those with swallowing disorders today, especially in the area of pediatric feeding disorders, is the lack of insurance coverage. Children who have developmental diagnoses and exhibit feeding deficits that don't necessarily affect overall medical status are most often left out of getting coverage. These children are often kept from being able to eat age appropriate food safely, and could greatly benefit from treatment.

New Tools of the Trade

For those receiving treatment, there are many tools available for speech therapists and dietitians to use in rehabilitating patients with feeding disorders and are chosen based on what type of feeding disorder the therapist is treating.

Warwick notes that there have been some advancements in liquids to allow more variety. New thickeners have been developed that can be added to liquids to achieve the proper thickness for safe swallowing. Many new products are available ready to serve with the exact viscosity designated on the label.

According to Hill, "Therapists specializing in pharyngeal phase swallowing disorders continue to use exercises that we've used for many years but now have more technological therapies available such as electrical stimulation techniques, such as [Vital Stim](#)."

Therapists treating oral-phase feeding disorders often use tools that will help to improve coordination, precision, endurance and skill of the jaw, lips, and tongue outside of feeding in conjunction with therapeutic feeding techniques such as the [TalkTools Therapy](#) techniques.

"Use of any of these techniques requires training and a full understanding of what the feeding goals are, how use of the therapy technique will impact that skill, and using the technique in conjunction with feeding itself," says Hill.

Working in close conjunction with the patients, speech therapists and dietitians have created several methods to improve the lives of those with swallowing and feeding disorders. Developing a tailored approach with a concerted effort of both specialists is key to success. In both adults and children, many patients are able to improve or regain functionality, and others are taught how to cope so they can stay nourished.

— Jennifer Pilling, MA, is a freelance writer based in Pennsylvania. Questions and comments can be directed to editorial@therapytimes.com.