

MUSC Evelyn Trammell Institute for Voice and Swallowing expands

Since its founding in September 2000, the MUSC Evelyn Trammell Institute for Voice and Swallowing has more than doubled its staff, deepened its connection to key MUSC services such as Speech and Language Pathology, the Head and Neck Tumor Program, the Cochlear Implant Center and the Digestive Disease Center, and this June dedicated its new location in Rutledge Tower on the MUSC campus.

"What makes us different is we integrate the evaluation and treatment of voice and swallowing under one roof," said Bonnie Martin-Harris, Ph.D., director and founder of the Evelyn Trammell Institute. "Given the inter-relationship of voice and swallowing, it is critical to attend to both functions."

The institute provides a multidisciplinary center for the evaluation, treatment and clinical research of laryngeal, voice and swallowing disorders for adults and children. Because voice, swallowing and respiratory disorders often occur together, the institute maximizes care by collaborating with a range of specialists.

As a division of the Department of Otolaryngology-Head & Neck Surgery, the institute brings together a wealth of resources and expertise. MUSC physicians and staff provide state-of-the-art care for adults and children presenting a wide variety of disorders. It also maintains a vital association with the Evelyn Trammell Voice & Swallowing Center at Saint Joseph's Hospital of Atlanta.

In addition to providing patient care, the institute is committed to building public awareness of voice and swallowing disorders through teaching and education. Clinical research is another vital component of the institute. Research efforts cover a broad scope, including the study of laryngeal dynamics during coordinated respiration and swallowing, and the effects of esophageal dysfunction on the larynx.

Patients can be referred to any member of the institute for comprehensive evaluation and care. Or, referring physicians may prefer to partner in the care of patients. Each patient receives a complete evaluation and individualized treatment program from each of the specialists consulted. The program includes collaborative management between the otolaryngologist and speech-language pathologist.



Lucinda Halstead, M.D., performs microlaryngeal surgery on an infant.

Voice

"Voice and laryngeal disorders can be a source of serious frustration and anxiety," said Lucinda Halstead, M.D., medical director of the institute. "We are dedicated to providing the complete range of diagnostic and treatment options, along with voice wellness evaluation and treatment programs."

Diagnostic and treatment facilities serve the professional voice, the pediatric and aging voice, the paralyzed or weakened larynx, benign and malignant tumors affecting laryngeal function, voice restoration and rehabilitation in head and neck cancer patients, and many other disorders.

Evaluation

Following a physician's referral, voice specialists fully evaluate vocal abilities using state-of-the-art analysis and provide appropriate recommendations and treatment. The evaluation process is highly educational and interactive, allowing patients to view video images of their own vocal folds. With recommendations from the specialist and physician, patients make decisions for care based on their individual needs.

Treatment

Voice specialists at the Evelyn Trammell Institute focus treatment primarily upon optimizing the speaking voice through muscle re-education, teaching proper vocal techniques and hygiene. Specialized treatments are available for the vocal professional, often improving vocal performance. When appropriate, specialists work closely with physicians, community vocal coaches and singing teachers to achieve full vocal performance.



Bonnie Martin-Harris, Ph.D., conducts an acoustic analysis of vocal production.

Voice restoration following laryngectomy is another area of service. Clinicians provide pre-operative and post-operative instruction in the management and use of alternative speech production methods such as electronic speech aids, esophageal speech and tracheoesophageal voice prostheses.

The institute has also forged a working relationship with the College of Charleston on ways for the vocal professional to optimize vocal potential. Both are engaged in a study focusing on vocal tract dynamics of woodwind instrumentalists and singers, examining vocal fatigue, hoarseness, voice vibrato using imaging technology and multiple physiological signals.

"There is much we can impart to singers to help them stay healthy and prevent injury," said Dr. Halstead, who established the voice center at MUSC in 1989. The voice center is part of an international network of doctors who specialize in treating elite performers.

State-of-the-art procedures and equipment

- Comprehensive medical evaluation of the voice and airway
- Advanced phonosurgical techniques
- Laryngeal framework surgery for vocal cord bowing and paralysis
- Laryngeal electromyography (EMG)
- Botox injections for laryngeal dystonias
- Image, acoustic and aerodynamic analysis
- Videostroboscopy and flexible endoscopy
- Voice treatment, wellness and hygiene
- Laryngectomy rehabilitation
- Tracheoesophageal prosthesis fitting
- Speech/language evaluations and treatment



Swallowing

The science of swallowing has only been around for 20 years, though millions of Americans suffer from conditions that compromise swallowing function.

"Disorders of swallowing have been documented in medical reports for years, yet the study of swallow function has been appreciated as clinical science only fairly recently," said Dr. Martin-Harris. "We now have technology that allows us to view functions that were previously unobservable."

The institute takes a scientific physiological approach to evaluation and treatment. First-line treatment typically is conservative, involving behavioral approaches.

"We are able to retrain or strengthen the striated musculature of the vocal and upper aerodigestive tracts, using principles developed in areas of exercise physiology," Dr. Martin-Harris said.

Dysphagia may be a consequence of weakness in the musculature of the lips, mouth, tongue, palate, pharynx and esophagus, surgical ablation of tissue and decreased sensation of the oral and pharyngeal cavities leading to a delay in the stimulation of swallowing. Oral-pharyngeal dysphagia as a result of cerebrovascular accident, traumatic brain injury, oral-pharyngeal carcinoma or other degenerative neuromuscular diseases, can significantly delay patient recovery. The dysfunction can lead to malnutrition, dehydration and pulmonary complications such as aspiration pneumonia.

Rehabilitative treatments for dysphagia have been developed over the past decade as a result of advancements in technology and research. Intervention for dysphagia can mitigate oral-pharyngeal swallowing impairment and can also affect long-term improvement in swallowing through muscle retraining.

Evaluation

Following a physician's referral, specialists conduct a thorough swallowing evaluation using advanced analysis, then provide appropriate recommendations and treatment. The evaluation process is highly educational and interactive. This, along with recommendations from the specialist and physician, assists patients in making decisions for care based on their individual needs.

A swallowing evaluation includes a review of a patient's medical history and conditions that can contribute to swallowing problems. Modified barium and fiberoptic swallow studies are used to evaluate functioning of the muscles and structures of the mouth, throat and upper esophagus.

Treatment

Speech pathologists and swallowing therapists develop a management plan, coordinating efforts with other members of the team. The goal of the team is to restore patients to safe, effective swallowing to ensure good health and nutrition.

The Institute's comprehensive approach to swallowing includes evaluation and treatment methods

- ▶ Modified barium and video-endoscopic swallowing evaluations
- ▶ Fiberoptic endoscopic and video-endoscopic evaluation of swallowing
- ▶ Digital biomechanical analysis
- ▶ Intraoral pressure recording
- ▶ Swallowing rehabilitation
- ▶ EMG biofeedback and muscle retraining
- ▶ Simultaneous nasal airflow recording (visual/auditory)
- ▶ Nutritional assessment and counseling
- ▶ Long-term support for dysphagia of unknown cause or secondary to oncologic or neurologic procedures to the head, neck, spine and chest