

UT News

Office of Medical Information
The University of Texas Health Science Center at Dallas
5323 Harry Hines Boulevard Dallas, Texas 75235
214/688-3404

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CONTACT: Ann McVay

OFFICE: 214/688-3404

HOME: 214/494-0391

****Doctors need volunteers for
research on vocal disorders

DALLAS--A group of Dallas area doctors is calling for volunteers with a rare vocal disorder, spasmodic dysphonia, which will be studied by means of specialized imaging techniques.

Victims of spasmodic dysphonia have jerky, staccato and hoarse speech. The group, the Dallas Center for Vocal Motor Control, is also studying stuttering and cortical dysarthria, a slurred, poorly-enunciated speech pattern resulting from stroke.

The research project, funded in part by a grant from the National Institutes of Health, draws together a team of specialists from The University of Texas Health Science Center at Dallas, The University of Texas at Dallas Callier Center for Communication Disorders, The University of Texas at Arlington and Dallas Neuroscience Associates, a private medical clinic. The research has dual goals of understanding how the brain controls speech, especially the motor aspects of voice production, and of helping individuals who suffer from three disorders, spasmodic dysphonia, stuttering and cortical dysarthria.

Spasmodic dysphonia appears to be a disorder of the gray matter or external layer of the brain, say co-principal investigators, Drs. Terese Finitzo, associate professor of Communication Disorders and Frances Freeman, research scientist, both of UTD Callier Center for Communication Disorders.

"One of the damaged areas, or abnormalities, seems to be predominantly in the left frontal to temporal lobe," Finitzo says. "That's a highly sensitive area for speech."

This view refutes earlier theories that people with spasmodic dysphonia suffer from a form of neurotic speechlessness. Over the past decade, studies conducted in Dallas have established that spasmodic dysphonia is a neurological disorder resulting from several possible causes, including head injury or stroke. Spasmodic dysphonia has a sudden onset that usually occurs between the ages of 30 and 50.

High-technology imaging techniques provide the basis of the research, allowing an analysis of the central nervous system and its speech and hearing functions. These techniques include magnetic resonance imaging (MRI); single photon emission computed tomography (SPECT), a measure of cerebral blood flow; and brain electrical activity mapping, (BEAM) a form of computerized

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electroencephalogram (EEG).

Although researchers have confirmed which areas of the brain are affected by spasmodic dysphonia, they have yet to determine where the malfunction originates. By studying patients in early stages of the disorder with specialized imaging equipment, they hope to gain better insights into its initial causes.

"Magnetic resonance imaging provides the best view of the anatomy of the brain that we've ever had. It is a spectacular tool for examining any structural problems in the brain," says Dr. Michael Devous, assistant professor of radiology at The UT Health Science Center at Dallas. "BEAM and SPECT allow us to examine the brain's function. With BEAM and SPECT we can measure what part of the brain is being used during speech."

In a related project which will involve some of the same patients, Drs. Steven Schaefer, professor of otorhinolaryngology, and Lanny Close, associate professor of otorhinolaryngology at The UT Health Science Center at Dallas, are looking at the vocal tracts of patients with vocal disorders by means of electromyography. The electromyography lab, in existence for two years, is one of only a few in the country.

"We conduct electromyography studies by giving the patient selected speech tasks or non-speech tasks that activate certain parts of the brain," Schaefer explains. The tasks include such activities as making the vowel sound "e," holding the breath and repeating specific sentences. Electrodes are inserted into the palate, larynx, tongue and different muscles of the vocal tract. When the patient performs the special tasks, areas of normal and abnormal neuromotor activity are recorded.

Through better understanding of the nature and location of the abnormalities, researchers will be able to prescribe appropriate therapy for the vocal disorders. The imaging techniques will also allow researchers to determine if treatments -- for example, certain drug therapies -- are effective over a period of time.

Volunteers for the studies in spasmodic dysphonia, stuttering or cortical dysarthria must be between the ages of 21 and 69. All evaluations and tests related to the research are performed at no cost to participants. For additional information, contact Dr. Sandra Chapman, grant coordinator, Dallas Center for Vocal Motor Control at the Callier Center for Communication Disorders, 214/783-3009.

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Note: The University of Texas Health Science Center at Dallas comprises Southwestern Medical School, Southwestern Graduate School of Biomedical Sciences and the School of Allied Health Sciences.