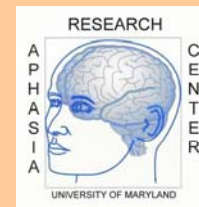


# Aphasia Research Center

## University of Maryland



### NEWSLETTER

Volume 2, Spring 2007

### CONTACT US

Yasmeen F. Shah, PhD, CCC  
Department of Hearing & Speech  
Sciences,  
University of Maryland  
0133, Lefrak, College Park, MD -  
20742

Email: [aphasia@hesp.umd.edu](mailto:aphasia@hesp.umd.edu)

Phone: 301.405.2477

Fax: 301.314.2023

<http://www.bsos.umd.edu/hesp/facultyStaff/shahy/lab.htm>

Every hour, approximately 30 people develop aphasia as a result of stroke and there are about 1 million individuals with aphasia in the United States! Aphasia refers to difficulty in speaking or understanding language due neurological injury, most commonly due to stroke. Aphasia is a debilitating condition, impairing the ability to communicate normally and return to work.

At the Aphasia Research Center we study language production and comprehension of individuals with aphasia using different methods, such as language analysis, reaction time measures, grammaticality judgments, and treatment efficacy as well as brain imaging. In particular, we are interested in the following issues:

- Why do some individuals with aphasia experience difficulty in producing sentences, particularly, verbs in sentences?
- What types of treatments are most efficacious in rehabilitating individuals with difficulties in sentence production?
- What neural mechanisms are involved in the processing and production of verbs and sentences?

## Current Projects

### ✚ Investigations of verb processing

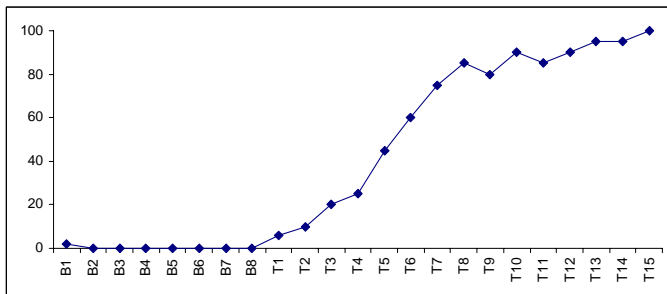
Some individuals with aphasia find it difficult to produce verbs while speaking. They may use more general verbs, such as *She did cake* instead of *She baked a cake*. Or, they may substitute different inflectional variants of the verb, for example, *Yesterday she going to the mall* for *Yesterday she went to the mall*. In some occasions, they may not produce a verb when one is required, for example, *Tuesday...dentist... 4 o'clock*. Difficulties with producing verbs often make their speech ungrammatical and require the listener to guess the intent and fill in information. This creates difficulties in communication between the aphasic individual and communication partner.

We investigate various aspects of verb production in individuals with aphasia and compare these with individuals who do not have aphasia (matched for age and education). We are particularly interested in examining which linguistic variables exacerbate aphasic individuals' difficulty with verbs and which variables ameliorate their production difficulties. We are using a

variety of experimental tasks such as picture description, sentence completion, repetition, and reaction time measures to investigate these questions.

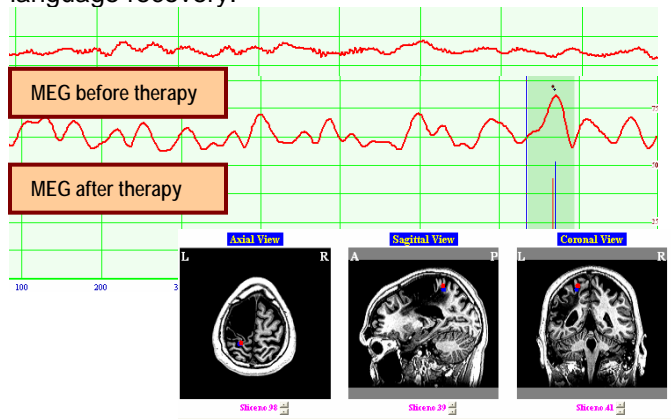
### ✚ Treatment of sentence production

A primary focus of our research is developing and testing treatment protocols for individuals with aphasia. We use the findings of our behavioral studies to learn more about specific deficits and design treatment protocols. The treatment studies focus on verbs and sentences. Our treatment studies involve intensive individual treatment, 3-5 times a week for 2 hours each, and typically extend between 4-6 weeks. The duration of the study for each participant depends on progress made in therapy. During the past year, we had seven individuals with aphasia successfully participate in our treatment research program. The chart shows the progress in the ability to produce grammatically accurate sentences in one of our participants over the course of fifteen treatment sessions. "B" (baseline) shows performance when no therapy was given, showing little improvement, and "T" shows sentence production when the person participated in our treatment study.



### Neuroimaging of verb processing

Since aphasia results from injury to the brain, we are interested in learning more about the relationship between brain damage and language. We are specifically interested in documenting changes in neural activity that occur in patients who participate in our treatment efficacy studies (see above). We are using [magnetoencephalography](#) (MEG) in conjunction with Magnetic Resonance Imaging (MRI) for our studies. The pictures below show a change from very little neural activity before therapy to increased neural activity after therapy in one of our participants. This scan was done when our participant was listening to sentences while in the MEG scanner. The red/blue dots in the MRI scan point to likely brain regions that show increased activity after therapy. Interestingly, we find that the left hemisphere (the side of the brain that experienced the stroke) actively participates in language recovery.



## Interested in Participating?

We are always interested in involving more individuals with aphasia in our research. So, if you or anyone you know has had a stroke and experience difficulty with speaking or understanding language, please contact us. We provide all speech-language evaluation and therapy free of charge. We also reimburse you for participation and transportation expenses.

We also recruit individuals without aphasia who are approximately in the same age range as our aphasic participants for comparison purposes. So if you do not have aphasia or any other neurological conditions, please contact us for more information. Most testing is conducted at the Aphasia Research Center in the University of Maryland, College Park. However, depending on availability of personnel, we may be able to make an initial home visit.

## Events during the past year

### Maryland Speech & Hearing Association Annual Convention

**WHEN:** Friday, March 24, 2006

**WHERE:** Holidome Conference Center, Frederick, MD

**WHAT:** Keynote address by Yasmeen Shah "Neural plasticity in Aphasia Therapy", 3.0 CEU

### Conference on Human Sentence Processing, CUNY

**WHEN:** March 25, 2006

**WHERE:** CUNY Graduate Center, New York

**WHAT:** Conference presentation by Yasmeen F. Shah "Relation between temporal adverbs and verb morphology in agrammatic aphasia"

### Cognitive Neuroscience Society

**WHEN:** April 8 – 11, 2006

**WHERE:** Hyatt Regency, San Francisco, CA

**WHAT:** Conference presentation by Yasmeen Shah "Priming of Morphological Production in Aphasia"

### Maryland Day – Aphasia Research Center Open House

**WHEN:** Saturday, April 28, 2007, 10:00 am – 4:00 pm

**WHERE:** University of Maryland, College Park, MD20742

**WHAT:** As part of University's Maryland Day celebrations, we will be open to the public to talk about our research activities, screen for aphasia, and educate the public about stroke and other forms of brain injury.

