Does Perception of Faces and Objects Change as a Result of Body Weakness?

Lila Chrysikou, Ph.D. & Sharon Thompson-Schill, Ph.D.

Dr. Lila Chrysikou and Dr. Sharon Thompson-Schill would like to thank the patients who participated in their study on face and object recognition. Patients with injuries on the right or left side of the brain often experience weakness or paralysis on the side of the body that is opposite to the side of the brain injury. As a result, the patients tend to use one side of their bodies significantly more than the other. One of our interests is to examine whether these dramatic changes in the ways patients use their limbs influence how they perceive, recognize, and evaluate different stimuli, such as faces and everyday tools. Through the patients’ contributions we are able to expand our knowledge on brain functioning and provide a context for the generation of new interventions that build on patients’ skills and everyday needs. Thank you so much to the patients for participating. Their help with our study is greatly appreciated!

Perception and Appreciation of Art

Bianca Bromberger, B.A., & Anjan Chatterjee, M.D.

The Chatterjee lab is continuing its research on art and the brain. Some of our most recent research has explored how certain types of brain damage can affect artistic production. We are currently studying how damage to the brain can affect perception and appreciation of visual art. Our findings were presented this year at the Cognitive Neuroscience Society Annual Meeting in Montreal, Canada and will also be presented at the Congress of the International Association of Empirical Aesthetics in Dresden, Germany. A big thank you to all the database participants who were involved in the study!
**What Influences Word Recognition?**

Eiling Yee, Ph.D. & Sharon Thompson-Schill, Ph.D.

The Thompson-Schill lab has been collaborating with the Brown University Speech Lab (Sheila Blumstein, P.I.) to conduct a series of eyetracking studies to explore how certain properties of language affect how we recognize a collection of sounds as a word, and how we then map that word to a concept or meaning in memory. When you hear a familiar word like cat, in addition to thinking of the four-legged, meowing pet, you may also subconsciously consider words similar in sound (rat, hat, cab) or meaning (mouse, dog). By tracking eye movements as participants hear a word and then select a matching picture from an array of four images, we are gathering information on the influence of word frequency, sound structure, and relatedness in accessing the word.

Our research shows that non-brain-injured participants look more quickly to pictures of frequently-heard words with fewer “neighbors” (similar-sounding words), than to those of less frequent words with many neighbors. Additionally, when one of the pictures in the display is related in meaning to the target image (e.g., a mouse presented in the stimulus array along with a cat), these participants show more looks to items related to words that have fewer neighbors. Thus, the number of similar words in a target word’s neighborhood not only affects access to the target word itself but it also impacts how easily the lexical-semantic network of the target word is accessed.

We are testing aphasic participants with lesions in the left inferior frontal gyrus (IFG) and supramarginal/angular gyrus (SMG/AG) to determine if the factors of frequency, sound structure, and relatedness in meaning similarly impact their word recognition. While both aphasic groups showed sensitivity to frequency and similarity in meaning, their pattern of performance as a function of number of neighbors differed from non-brain-injured participants as well as from each other. In conjunction with other research, these findings suggest that parietal brain structures including the SMG/AG are involved in processing sound structure, and the IFG is involved more generally in selecting among competing alternatives in word recognition.

---

**Online Resources**

Did you know that many of the large organizations with an interest in neurological research also maintain websites with information directed toward patients and the general public? Here are a few resources to check out.

**National Institutes of Health**

[www.nih.gov](http://www.nih.gov)

Wide-variety of health-related information. Check out the News Releases section as well as NIH Radio links for current research updates.

**National Institute of Neurological Disorders and Stroke**

[www.ninds.nih.gov](http://www.ninds.nih.gov)

Updates and links to sites focusing on a variety of neurological diseases, including stroke, brain tumor, cerebral aneurysm, encephalitis and arteriovenous malformation.

**Society for Neuroscience Public Education and Outreach**


Extensive listings of neuroscience educational opportunities.

**American Academy of Neurology**

[http://patients.aan.com](http://patients.aan.com)

Contains recommended books and publications, and includes advice on how to work with your neurologist and contact information for support groups.
**Recent Publications and Presentations**

The participation of our database patients and controls in our research leads to an increased understanding of brain function. We communicate our findings to other scientists through publications in scholarly journals and presentations at scientific meetings. With gratitude to our research participants, here are a few of our most recent presentations.

**Publications**

- **Similarities and differences between parietal and frontal patients in autobiographical and constructive memory tasks.** Berryhill, M.E., Picasso, L., Arnold, R., Drowos, D., & Olson, I.R. (in press). *Neuropsychologia*.


**Presentations**


RESEARCHER UPDATES

MARIAN BERRYHILL, Ph.D.
Dr. Marian Berryhill will begin a faculty position as an assistant professor in the Psychology Department at the University of Nevada-Reno. She will miss Philadelphia! Marian wants to thank all of the wonderful patients who have been so generous with their time over the last 4 years. We wish Marian all the best and hope that she returns often to visit.

LAUREN RICHMOND, M.A.
Lauren completed her undergraduate and master’s work in psychology at Marist College, a small liberal arts school located in Poughkeepsie, NY. She is currently a graduate student in the Department of Psychology, Brain & Cognitive Sciences Division, at Temple University, where she is also pursuing a specialization in Neuroscience. Lauren’s research interests are varied, and recently she has been conducting a study looking at the ability to train working memory in older adults. Lauren works under the direction of Dr. Ingrid Olson.

JESSICA STUMP, B.A.
Jessica is a research assistant in Dr. Joe Kable’s laboratory. She received her undergraduate degree in Biology and Psychology (with a specialty in Cognitive Neuroscience) at the University of Denver, and she will be moving on to Temple University to attend graduate school in clinical psychology this fall. Congratulations, Jessica!

WE NEED YOU!
Non-brain-injured subjects are needed for our cognitive research studies. Subjects receive the same tests as the patients, and they help us to learn how individuals without brain injury perform on the same tasks. Payment is $15 per hour plus mileage and parking. Call 215-614-1971 for more information.

YOUNG STROKE SUPPORT GROUP
Penn’s Young Stroke Support Group provides a chance for stroke patients to meet and talk with others facing similar challenges. Guest-speakers are invited to address issues relevant to younger adults.

Meetings: 3rd Thursday of the month, 6:30 p.m.
Ravdin-6 Conference Room, HUP (34th & Spruce Streets)
For more information and to confirm meeting times, contact Jeanie Luciano, MSN, CRNP (Stroke) at 215-614-0175 or jeanie.luciano@uphs.upenn.edu.