

UNIVERSITY OF PENNSYLVANIA
CENTER FOR COGNITIVE NEUROSCIENCE (CCN)



THE PATIENT PROGRAM

THE PATIENT RESEARCH PROGRAM IS DESIGNED TO DEVELOP A COMPREHENSIVE DATABASE FROM WHICH RESEARCHERS CAN RECRUIT PATIENTS FOR COGNITIVE TESTING. THE GOAL IS TO BETTER CHARACTERIZE BRAIN-BEHAVIOR RELATIONSHIPS BY STUDYING PATIENTS WITH RELATIVELY FOCAL LESIONS, GENERALLY AS A RESULT OF STROKE OR TUMOR, BUT ALSO INCLUDING PATIENTS WITH OTHER RELATIVELY RESTRICTED LESIONS RESULTING FROM OTHER TYPES OF INJURY (SUCH AS RUPTURED ANEURYSM OR AVM).

THE PROGRAM IS DESIGNED TO INVESTIGATE COGNITIVE PROCESSES, SUCH AS LANGUAGE, VISION, PROBLEM SOLVING AND MEMORY, THAT ARE CRITICAL FOR EVERYDAY FUNCTIONING. PATIENTS PARTICIPATE IN BEHAVIORAL TESTING WHICH INCLUDES ANSWERING QUESTIONS, READING WORDS AND SOLVING

FACILITIES

OUR FACILITIES INCLUDE TESTING SPACE IN THE DEPARTMENT OF NEUROLOGY AT THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA, AS WELL AS TESTING ROOMS LOCATED AT THE UNIVERSITY OF PENNSYLVANIA CENTER FOR COGNITIVE NEUROSCIENCE (CCN).

ADDITIONALLY, WE HAVE ENCOUNTERED PATIENTS WHO WOULD BE DELIGHTED TO PARTICIPATE IN OUR STUDIES BUT WHO ARE UNABLE TO TRAVEL TO OUR OFFICES. THESE PATIENTS HAVE

SIMPLE PROBLEMS. THE TESTS ARE ADMINISTERED BY OUR RESEARCH PSYCHOLOGISTS AND NEUROLOGISTS, AND THE COLLECTED DATA ARE USED TO HELP ANSWER THEORETICALLY-MOTIVATED RESEARCH QUESTIONS.

THE RESEARCH PROGRAM DEPENDS ON THE GENEROSITY OF OUR PATIENTS, WHO GIVE SO FREELY OF THEIR TIME AND EFFORT. WE ARE INDEBTED TO THEM AND THEIR LOVED ONES, WHO HELP TO COORDINATE TRANSPORTATION AND APPOINTMENTS. CLEARLY ALL THOSE INVOLVED POSSESS INSIGHT INTO THE IMPORTANCE OF NEUROLOGICAL RESEARCH.

APPROXIMATELY 160 PATIENTS AND CONTROL SUBJECTS HAVE ENROLLED IN MORE THAN 600 TESTING SESSIONS SINCE THE BEGINNING OF THE PROGRAM.

KINDLY OFFERED TO ALLOW US TO COME TO THEIR HOMES SO THAT THEY CAN WORK WITH US THERE.

STATE-OF-THE-ART COMPUTERS, EYE-TRACKER AND AN EXTENSIVE NEUROPSYCHOLOGICAL TESTING LIBRARY ARE JUST A FEW OF THE RESOURCES AVAILABLE FOR BEHAVIORAL TESTING. MAGNETIC RESONANCE IMAGING (MRI) STUDIES ARE CONDUCTED AT THE MAGNETIC RESONANCE IMAGING CENTER IN THE DEPARTMENT OF RADIOLOGY AT THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.



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ONGOING STUDIES

DR. SHARON THOMPSON-SCHILL

WE ARE INTERESTED IN MEMORY, LANGUAGE, AND ATTENTION DEFICITS THAT OCCUR FOLLOWING DAMAGE TO THE FRONTAL LOBE, AND THE RELATIONSHIP BETWEEN THESE DIFFERENT FUNCTIONS.

DR. MARTHA FARAH & DR. LESLEY FELLOWS

WE WERE AWARDED NEW FUNDING FROM NINDS TO EXPAND OUR ONGOING RESEARCH PROGRAM STUDYING THE REGIONS OF THE BRAIN THAT ARE INVOLVED IN DECISION MAKING. AMONG OTHER THINGS, WE HOPE TO BETTER UNDERSTAND HOW FOCAL BRAIN DAMAGE SOMETIMES LEADS TO CHANGES IN LEVEL OF MOTIVATION, AND HOW SUCH CHANGES INFLUENCE DECISION MAKING.

DR. ANJAN CHATTERJEE, DR. DENISE WU & DR. SARA WALLER

IN A RECENT STUDY, WE EXAMINED 18 PATIENTS WITH LEFT HEMISPHERE DAMAGE. PATIENTS RECEIVED VERBAL AND NONVERBAL (PICTURES) TASKS TO PROVIDE EVIDENCE FOR THE DISTINCTION BETWEEN CONCEPT AND LANGUAGE. THE PERFORMANCE OF SOME PATIENTS DEMONSTRATED INTACT OR RELATIVELY PRESERVED UNDERSTANDING OF CONCEPTS BUT IMPAIRED LANGUAGE COMPREHENSION/PRODUCTION. THEIR LESION SITES WERE ALSO OBTAINED TO SHED LIGHT ON THE NEURAL SUBSTRATES OF CONCEPT AND LANGUAGE PROCESSING.

PRESENTATIONS, CONFERENCES, AND INVITED SPEAKER ENGAGEMENTS

DR. ANJAN CHATTERJEE

WHAT NEGLECT REVEALS ABOUT THE NEURAL ORGANIZATION OF SPACE. KEYNOTE ADDRESS, 2ND INTERNATIONAL CONFERENCE "NEUROLOGY, LANGUAGE AND COGNITION," KERALA, INDIA. DECEMBER, 2002.

DR. ANJAN CHATTERJEE

NEGLECT AND THE NEURAL ORGANIZATION OF SPACE. COOPER HOSPITAL NEUROLOGY GRAND ROUNDS, CAMDEN, NEW JERSEY. FEBRUARY, 2003.

DR. LESLEY K. FELLOWS, & DR. MARTHA J. FARAH

VENTROMEDIAL FRONTAL LOBE DAMAGE SELECTIVELY IMPAIRS REVERSAL LEARNING IN HUMANS. COGNITIVE NEUROSCIENCE SOCIETY MEETING, NEW YORK. MARCH, 2003.

DR. LESLEY K. FELLOWS, & DR. MARTHA J. FARAH

VENTROMEDIAL FRONTAL LOBE DAMAGE LEADS TO A

FORESHORTENED PERCEPTION OF THE FUTURE, WITHOUT INFLUENCING THE TEMPORAL DISCOUNTING OF REWARD. COGNITIVE NEUROSCIENCE SOCIETY MEETING, NEW YORK. MARCH, 2003.

DR. LESLEY K. FELLOWS, & DR. MARTHA J. FARAH

AFFECTIVE SHIFTING IN THE IOWA GAMBLING TASK: GAMBLING PERFORMANCE IN HUMANS WITH VENTROMEDIAL FRONTAL LOBE DAMAGE REFLECTS A FUNDAMENTAL REVERSAL LEARNING DEFICIT. TO BE PRESENTED AT THE SOCIETY FOR NEUROSCIENCE MEETING, NEW ORLEANS. NOVEMBER, 2003.

DR. SHARON L. THOMPSON- SCHILL

DONDERS LECTURE "BROCA'S AREA REVISITED: SELECTION, LANGUAGE, & PREFRONTAL CORTEX," MAX PLANK INSTITUTE, NETHERLANDS.

RECENT PUBLICATIONS

FELLOWS, L.K. & FARAH, M.J. (2003). VENTROMEDIAL FRONTAL CORTEX MEDIATES AFFECTIVE SHIFTING IN HUMANS: EVIDENCE FROM A REVERSAL LEARNING PARADIGM. *BRAIN*, 126, 1830-1837.

[HTTP://BRAIN.OUPJOURNALS.ORG](http://brain.oupjournals.org)

FELLOWS, L.K. & FARAH, M.J. (SUBMITTED). DISSOCIABLE ELEMENTS OF HUMAN FORESIGHT: A ROLE FOR THE VENTROMEDIAL FRONTAL LOBES IN FRAMING THE FUTURE, BUT NOT IN THINKING ABOUT FUTURE REWARDS.

FELLOWS, L.K. & FARAH, M.J. (SUBMITTED). IS THE ANTERIOR CINGULATE CORTEX NECESSARY FOR COGNITIVE CONTROL?

FELLOWS, L.K., & FARAH, M.J. (SUBMITTED). DIFFERENT UNDERLYING IMPAIRMENTS IN DECISION MAKING FOLLOWING VENTROMEDIAL AND DORSOLATERAL FRONTAL LOBE DAMAGE IN HUMANS.

GOTTFRIED, J.A., SANCAR, F., & CHATTERJEE, A. (2003). ACQUIRED MIRROR WRITING AND READING: EVIDENCE FOR REFLECTED GRAPHEMIC REPRESENTATIONS. *NEUROPSYCHOLOGIA*, 41, 96-107.

OLSON, E., STARK, M., & CHATTERJEE, A. (2003). EVIDENCE FOR A UNIMODAL SOMATOSENSORY ATTENTION SYSTEM. *EXPERIMENTAL BRAIN RESEARCH*, 151:15-23.

THOMPSON-SCHILL, S.L., JONIDES, J., MARSHUETZ, C., SMITH, E.E., D'ESPOSITO, M., **KAN, I.P.,** KNIGHT, R.T., & SWICK, D. (2002). EFFECTS OF FRONTAL LOBE DAMAGE ON INTERFERENCE EFFECTS IN WORKING MEMORY. *JOURNAL OF COGNITIVE, AFFECTIVE & BEHAVIORAL NEUROSCIENCE*, 2, 109-120.

NAMES OF CCN MEMBERS ARE PRINTED IN BOLDFACE.



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DEPARTMENT OF
NEUROLOGY

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AWARDS

DR. SHARON L. THOMPSON-SCHILL WAS AWARDED THE 2003 YOUNG INVESTIGATOR AWARD FROM THE COGNITIVE NEUROSCIENCE SOCIETY. ALSO IN 2003, SHE WAS NAMED THE CLASS OF 1965 ENDOWED CHAIR, UNIVERSITY OF PENNSYLVANIA.

OUR FACULTY DIRECTORS

ANJAN CHATTERJEE, M.D.

H. BRANCH COSLETT, M.D.

MARTHA FARAH, PH.D.

SHARON L. THOMPSON-SCHILL, PH.D.

FOR MORE INFORMATION

CONTACT US AT **215-615-3649** TO LEARN MORE ABOUT OUR PROGRAM AND UPCOMING STUDIES.