Members of Our Research Community,

We at the Stanford Movement Disorders Center wanted to take the opportunity to express our sincere gratitude for your participation and interest in our research on Parkinson’s disease and other parkinsonian disorders. The dedicated participation from volunteers like you lies at the heart of our scientific research. As a show of thanks, here’s an update on our progress to-date.

**Hot off the Press**

We have been hard at work compiling and interpreting valuable information given to us by research participants.

The fruits of our efforts will soon be available for shared access by the scientific community. Please see Page 4 for more information.

**Stanford Movement Disorders Continues to Grow!**

We are excited to announce five new movement disorders specialists have recently joined our practice! Please welcome our new team members:

- James Tetrud, M.D.
- Melanie Lising, M.D.
- Laurice Yang, M.D.
- Veronica Santini, M.D.
- Hokuto Morita, M.D.

**Research Recruitment**

With the help of our research coordinators and scheduling team, headed by Taylor Hendershott and Jee Kim, we’ve considered over 257 individual cases for research.

**Diagnosis**

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parkinson’s disease (PD)</td>
<td>177</td>
</tr>
<tr>
<td>MSA</td>
<td>12</td>
</tr>
<tr>
<td>PSP/CBD</td>
<td>8</td>
</tr>
<tr>
<td>Healthy Control</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total Enrolled</strong></td>
<td>257</td>
</tr>
</tbody>
</table>

We’re actively recruiting participants with diagnoses of Parkinson’s disease, Multiple System Atrophy, Progressive Supranuclear Palsy, and Corticobasal Syndrome. We are also actively recruiting healthy controls, over the age of 50. Please see Page 2 for more information.
Brain Proteins and Memory Function: They’re Connected!

We analyzed the Cerebrospinal Fluid (CSF), brain MRI imaging, and memory tests from the over 80 generous participates in our study, which was funded by the Michael J. Fox Foundation. Our preliminary findings suggest that people with low levels of the protein Beta-Amyloid in the CSF are less able to connect the right and left ‘memory’ centers in the brain, known as the hippocampus. Dr. Kathleen Poston recently presented this research in New York City at the annual Fox Foundation Therapeutics Meeting, which showcased promising research to over 300 members of the pharmaceutical and biotech industry.

https://www.michaeljfox.org/research/parkinsons-therapeutics-conference.html

We are now continuing our research to determine whether this change in brain connectivity, as seen on MRI, can help doctors predict which patients with Parkinson’s disease are at the highest risk for developing memory problems in the future.

The Cerebrospinal Fluid protein Beta Amyloid can influence how the right and left ‘memory centers’ in the brain connect to one another.

New Studies

Recruitment for new research studies now ongoing:

(1) If you were part of our Michael J. Fox Foundation funded research study, you might be contacted to come back in for another visit! After the overwhelming success of our primary study, the Fox Foundation has asked us to continue to monitor the motor and memory functions of our participants. See below for our preliminary findings and details.

(2) We are thrilled to announce that as of June 1, 2015 the NIH, with the National Institute for Aging (NIA) has approved funding for the new Stanford Alzheimer’s disease Research Center (ADRC)! Our Center’s theme will be understanding memory problems in people with Parkinson’s disease and Alzheimer’s disease. See Page 3 for details about how you can participate in this exciting new Center!

(3) In a collaborative study with SRI, we have just started recruiting people with Parkinson’s disease for an MRI study focused on understanding how dopamine might influence thinking. See Page 4 for details and how to participate.

For more information about research, contact Taylor Hendershott at trhend15@stanford.edu.
The Stanford Alzheimer’s disease Research Center!

The NIH announced in July that it will fund the establishment of an Alzheimer’s disease Research Center (ADRC) at the Stanford University. This 5 year, 7.3 million dollar study will help scientists conduct interdisciplinary research on Alzheimer’s and Parkinson’s diseases, as well as on related disorders. With this award, Stanford joins the ranks of more than two dozen NIH-funded Centers at major medical institutions throughout the United States. In addition to core clinical, imaging, and genetic data collection, the Stanford Center with fund two specific research projects; one led by Kathleen Poston, MD, which will focus on clinical studies in people with Parkinson’s diseases and Mild Cognitive Impairment, and the other led by Nobel laureate Thomas Sudhof, MD, professor of molecular and cellular physiology, which will focus on cellular mechanisms of these diseases.

The Stanford Center’s activities will draw on the university’s unique strengths in imaging; neuroimmunity; synapse biology; biostatistics and bioinformatics; clinical assessment and research; epidemiology; and caregiver outreach. The Center will study patients at early stages of illness, as well as healthy older adults, and to follow them over time — in many instances to autopsy. At the same time, the Center will foster new research collaborations that advance knowledge about Alzheimer’s, Parkinson’s and similar disorders in order to treat them more effectively and help prevent them from occurring.

If you or a family member is interested in the Stanford ADRC, please contact Christina Wyss-Coray at 650-721-2409 or ADRC@stanford.edu.

Different patterns of energy metabolism might distinguish people with Parkinson’s disease (left), Multiple System Atrophy (right), Progressive Supranuclear Palsy and Corticobasal Syndrome.

Early Diagnosis: It’s Important!

Did you know up to 10% of newly diagnosed patients enrolled in clinical trials turn out to have a diagnosis other than Parkinson’s disease? It turns out that making an accurate diagnosis at the time when symptoms start is no easy task, and even the ‘best of the best’ movement disorders doctors are nowhere near perfect. Dr. Kathleen Poston, along with researchers from the University of Pennsylvania and the Feinstein Institute in New York, has been studying the development of two new brain imaging tools that aim to help doctors ‘get it right, right away’. Over 160 patients have been enrolled in this NIH/NINDS supported study, now entering its fourth year. We continue to recruit patients with Multiple System Atrophy (MSA), Progressive Supranuclear Palsy (PSP), and Corticobasal Syndrome/Disease (CBS/CBD), which are the most common diagnoses mistaken for Parkinson’s disease.

For more information about participating in this study, contact Taylor Hendershott at trhend15@stanford.edu.
What does Dopamine do to Memory?

Doctors, Parkinson’s disease patients, and their families can often ‘see’ how dopamine benefits movements, like tremor or slowness. However, it is much harder to determine what dopamine is doing to thinking and memory. Dr. Poston and her team have been trying to understand this important question by asking patients to perform memory tests in the MRI scanner, both Off and On their normal dopamine medications. In a study currently under review for publication, she found that specific brain areas were less activated during the memory task when patients were taking their dopamine. Her team has continued to work with researchers from SRI to understand how dopamine affects brain activation and connectivity during memory tasks.

Some regions of the brain are more active when Parkinson’s patients perform memory tests without dopamine (top). Other regions are less active with dopamine (bottom).

Stanford Brain Donation Program

Science has taught us that aging, dementia, and neurodegenerative disorders happen at the cellular level. While our research in diagnosing living participants is becoming more promising every day, Stanford investigators aim to use microscopic brain tissue analysis to learn more about brain disorders and improve our diagnostic ability. Autopsy and brain donation will help doctors move from a “best-guess” approach to that of concrete evidence-based diagnosis. Using this valuable information, we will be able to refine our approach to clinical diagnoses for future patients and families.

If you or a family member is interested in brain donation, please contact Christina Wyss-Coray at 650-721-2409.

Moving Forward

Research Staff will be contacting some participants to return to Stanford via telephone to repeat aspects of our studies and help us gather longitudinal data.

Be sure to ask about new research studies!
Scientific Papers


http://link.springer.com/article/10.1007%2Fs11682-014-9317-9

York Williams S, Poston KL. “What light have resting state fMRI studies shed on cognitive impairment and depression in Parkinson’s disease?” *Journal of Clinical Movement Disorders*, 2015 (In press)

http://clinicalmovementdisorders.biomedcentral.com/articles/10.1186/2054-7072-1-4


http://www.neurology.org/content/78/16/1237


http://www.jneurosci.org/content/30/3/1049