

APHASIA RECOVERY LAB



Welcome to 2023 and a new newsletter from us! This year, we are all back in person on the Berkeley campus. Most of us are still wearing masks, but it is nice to be able to see everyone in person again. I had forgotten what people look like in three dimensions after 2 years of Zoom meetings! As always, we continue our commitment to further our understanding of aphasia, assisting the members of our community who have aphasia, and offering support to those who care for people with aphasia.

In personal news of our Aphasia Recovery Lab, we are delighted that Dr. Nicoletta Biondo has joined us for a postdoctoral fellowship. She received a prestigious Marie Skłodowska-Curie Award and will be here until March of 2024. After that, she will be going to Spain, where she will finish the European part of her fellowship. She has been a wonderful addition to our lab, and is working on a “timely” project that she describes later in this newsletter. Other new members in the lab are Marisa Benedito, an undergraduate senior majoring in Linguistics and Psychology at UCB, and Dr. Albertyna Osinska, a colleague from Poland who was with us for a few months.

We have great news about Alexis Pracar, who many of you know through working with her on our projects. She recently passed her qualifying exams and has advanced to the dissertation stage of her Ph.D. program. She writes about her project on “singing in the brain” in this newsletter. Two other of our students are moving on in the summer to great opportunities. Eleonora Ghiraldini was accepted to graduate school at Florida State University in Neuroscience, though is still waiting to hear from other schools. She is very excited to take this next step in her career. Vanessa Anderson is working on her honors thesis with Maria Ivanova right now. Her research explores the cognitive benefits of exercise and is described in more detail below. After she graduates from UCB in Molecular and Cell Biology in May, Vanessa will be moving to the lab of UCSF neurosurgeon, Dr. Eddie Chang, where she will work as a patient coordinator. Then, it’s off to med school for her! Meanwhile, Anjelica Vance, Jaeleene Wijanco, and Sandhya Kannan have also gone on to terrific jobs at UCSF before they apply for graduate school, and Nathalie Dinsdale is now working on her Master’s Degree and accreditation in Speech Language Pathology in San Diego. It’s just wonderful to see our students flourishing and moving up in the world!

A new feature of our newsletter will be some personal stories from people in the lab. In this issue, we hear from Cong Du who was a post baccalaureate student in Psychology with us. She grew up in China as the child of deaf parents, and learned Chinese sign language as one of her languages.

Finally, in person conferences are also back, and we include some pictures in this newsletter. Maria Ivanova and Alexis Pracar presented papers at the Academy of Aphasia in Philadelphia in October, and Nicoletta Biondo presented to the Society for the Neurobiology of Language, also in Philadelphia. The audience was enthusiastic about their work, and Maria has already sent in a paper for publication on her topic. More about this work can be found on our website where you can also find other information about us and what we do at UC Berkeley. You can find us at <https://aphasia.berkeley.edu>.

Wishing you a great 2023!

Yours,

Nina Dronkers

Time Project

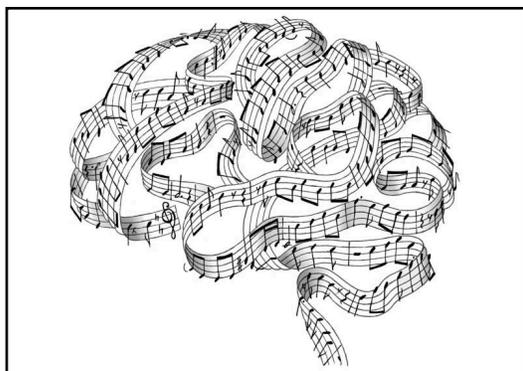


Illustration by Yang Yau Hoong (in ScienceNews, the Harvard Gazette)

Language gives us the extraordinary ability to talk about events that happened in the past, are happening right now, or will happen in the future. We generally do this by using verbs with different tense (past: he wrote, present: he writes, future: he will write) and temporal adverbs, describing when these actions happen (yesterday, today, tomorrow). Several studies have shown that people with aphasia struggle with this: they can have difficulty using a verb to indicate the correct time or understanding if a verb means a past action or a future action. In this project, we want to investigate this issue in more depth and see which aspects of time processing might be affected in aphasia. Also, we would like to study if this difficulty with time

information is just related to how we talk about time or if it is a more general problem with understanding time itself. We will do this by asking people to choose when an action in a sentence or a picture is happening. We will also get a picture of the brain using Magnetic Resonance Imaging (MRI) to see where the stroke occurred and how it might affect the understanding of time. This study will provide answers to the long-standing questions about how people understand the concept of time and the parts of the brain that help us to do this. Hopefully, this work will also help develop new clinical tools for patients with aphasia who have difficulty processing time as expressed through language. We are happy to say that we are almost ready for data collection! If you are interested and want to know a bit more about the topic (and possibly participate in the study!) please contact us! You can write to Dr. Nicoletta Biondo, at email: nicoletta.biondo@berkeley.edu or call (510) 643-9744.

Singing Project



We are excited to start a new project in the lab that will explore singing in the brain! Despite extensive exploration into the neural mechanisms of language, there is no good explanation for why singing is easier than speaking for some individuals with aphasia. This project takes a new approach to understanding how the brain expresses language through singing versus speech. We will explore the structural and functional neuroanatomy of singing, merging evidence from two groups of people: individuals with post-stroke aphasia, and neurosurgical patients with implanted electrodes. Performance of individuals with aphasia will allow us to look at the relationship between

singing ability and injury to certain parts of the brain. The neurosurgical patients come from another lab that studies electrical activity in the brain. These patients don't have aphasia, but their electrophysiological data will allow us to look at the brain activity in real time while people are singing. Together, these two groups of people can help us explore which brain areas must be uninjured for singing, and what is the electrical activity in these key regions that supports singing. With this approach, we hope to provide unique insights into the behavioral and neural mechanisms of singing.

Aphasia Physical Exercise Program (APEX) Project



We are excited to share that we are starting to study exercise as a possible new therapy to supplement traditional Speech-Language Therapy for people with aphasia. It is already well-known that exercise has many health benefits. Regular exercise lowers the risk of coronary heart disease and type 2 diabetes, and can decrease symptoms of depression and anxiety. We have developed a stroke-friendly routine called the Aphasia Physical EXercise (APEX) program that makes use of High-Intensity Interval Training (HIIT), a type of exercise that alternates between intense periods of exercise and rest. Studies on exercise in individuals recovering from stroke have been promising thus far. One of the first exercise studies in stroke tested a program with strengthening and aerobic exercises (physical activity that increases a person's heart rate and use of oxygen) in people with chronic stroke. The researchers found

that the exercise improved performance on a set of cognitive tasks that required decision making. Additionally, exercise may improve other cognitive functions such as working memory, attention, and how quickly we process information. Our lab is particularly interested in whether exercise might also benefit language recovery in people with aphasia. Our first step, which we will be working on in the coming months, is to pilot the APEX routine in healthy individuals to evaluate its safety and see how well it works. In the near future, we plan to explore the benefits of the APEX program in people with aphasia. Hopefully, the APEX routine can become another tool that individuals with aphasia can use to boost their physical and cognitive recovery. Stay tuned for more exciting news on this activity front!

Spotlight story: memories from a child of deaf parents

by Cong Du, Research Assistant in the Aphasia Recovery Lab

Growing up with my deaf parents in China, I have always been the private translator wherever we go, even at home. For a short period of time in my childhood, I thought I was so important that they couldn't live without me. I soon realized that was not true. My grandparents, aunts, and uncles lived with my parents for almost two decades and still didn't know sign language at all. My parents could run errands without me and still get things done. I saw my parents trying to communicate with other people through all kinds of body movements or gestures to make themselves clear. Still, my parents turned to me for help as much as possible. I was too young to think about the relationship between language and communication, but I started to realize that sign language was different from body gestures, and that communication can happen in many different forms.

I grew up, learned new languages, and befriended people from different countries. When I started to understand the importance of language, appreciate the beauty of it, and treat it very seriously, my dad taught me something unexpected again when we were on vacation in the U.S. and in Dubai. I thought they couldn't live without me again because I was the only one who knew English. Much to my surprise, they managed well without me. The most astonishing story happened when we were on a desert safari tour in Dubai. My dad, a deaf person unable to speak, let alone speak English, was "chatting and joking" with the local driver about another car that had gotten stuck in the sand. I was sitting in the back shockingly watching them "talking" back and forth and laughing happily together in the end. I wondered, "What is going on?" I couldn't help but reconsider the role of language in communication.

Studying in our Aphasia Recovery Lab gives me a similar feeling. I find language so fascinating, and I am amazed by how people strive to overcome the difficulties and barriers of languages. Sometimes I find myself destined for a journey of understanding what languages really are to people. I am not sure whether I will find an answer, but I won't stop trying.

Aphasia Identification Cards—

Covid-19 has reminded us all that is important to be prepared for problems. If you run into problems in your day-to-day life, it might be helpful to let people know that you have difficulties with language. [To print out the materials for making your card, please click here.](#)

[Print](#) both sides out and [laminates](#) them.

I HAVE APHASIA

Aphasia is a communication disorder that affects a person's ability to understand, produce, or read written or spoken words. Aphasia presents differently in each person.

In fact, the only thing everyone with aphasia has in common is that aphasia does not affect the person's intellect.

Aphasia can occur after a head injury or stroke. It can also be the result of a brain tumor. In rare cases, aphasia is the result of primary progressive aphasia (PPA), which is a neurodegenerative disorder.



FLIP CARD OVER FOR MORE INFORMATION

I HAVE APHASIA

My name is _____

Please contact _____ in case of an emergency. You can reach them at this number: _____

Please keep your sentences short and simple. Give me time to think and respond. I can give you a thumbs up (yes) or thumbs down (no) sign in response to yes/no questions. Verify that we both understand what the other person is saying.



Aphasia Resources

Visit our website at <https://aphasia.berkeley.edu/>

* Cool new resources for Aphasia on the internet*:

- A free online resource to find software programs and apps that can help improve communication - <https://www.aphasiasoftwarefinder.org/>
- Aphasia friendly resources and aphasia training - <https://www.aphasia.ca/>
- A non-profit organization dedicated to promoting aphasia research and providing access to treatment for people with aphasia - <http://www.aphasiahope.org/>
- Aphasia-friendly resource list compiled by University of North Carolina graduate students in the Division of Speech and Hearing Science - <https://www.med.unc.edu/healthsciences/sphs/card/resources/aphasia-friendly-printed-material/>
- Basic definitions and explanations of commonly used terms in aphasia discussions (eg. apraxia, PPA), as well as explanations of different aphasia types (Broca's, Global, etc.) <https://tactustherapy.com/aphasia/>
- Aphasia Recovery Connection is an organization dedicated to generating an aphasia-friendly community in order to combat feelings of isolation amongst those affected by aphasia through various group programs - <https://aphasiarecoveryconnection.org/>
- A comprehensive guide and support resources for caregivers - <https://www.caregiving.com/>

**Please note that this list is provided for informational purposes only. The Aphasia Recovery Lab does not endorse the provided resources.*

Aphasia ID Card

Print out the aphasia ID card materials by [clicking here](#)