

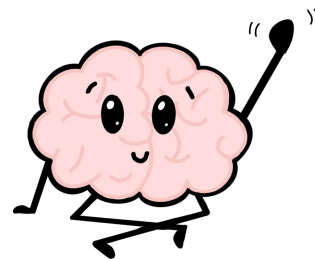
The Spoken Word

Language and Brain Lab Digest

2026



In this Issue



- 3** | How we process speech sounds: A working model
- 4** | How sensitive are we to what we hear? From older adults to aphasia
- 6** | Bridging the gap: Highlighting efforts to address disparities in research
- 8** | Community engaged research spotlight
- 11** | Community and yoga in aphasia: A conversation with Dr. Lauren Bislick
- 14** | Brain charts for the human lifespan: How does the brain change?
- 16** | Phonetic plasticity: How we learn and adapt to spoken language
- 18** | Getting involved with research in the LAB Lab

Editor-in-chief, Design, Illustrations
Portia Washington

Associate Editor
Hannah Mechtenberg

Writers
Amelia DePino
Ashley Douglass
Sarah Perotta
Mikayla Robinson
Brianna Rodriguez
Ava Sheard
Kaitlyn Wood

Publisher
Emily Myers

Note from the Editor

I am excited to introduce you to the **tenth** issue of *The Spoken Word*. What began as the brainchild of my labmate Hannah Mechtenberg has become an instrumental tool for sharing our work with the local community. During the production of this issue, we had the opportunity to present this digest model at several conferences, sparking many connections with researchers across disciplines. The longevity of this publication is a testament to our undergraduates' curiosity and the support of our diverse readership.

In this issue, our student writers explore a compelling theme: the human capacity to adapt in the face of change. Their articles examine yoga as a pathway to post-stroke resilience, the flexibility of speech perception, brain structure across the lifespan, and advancing health equity through community-engaged research. Throughout each piece, they return to a central truth: **language shapes our daily lives in profound and personal ways.**

I am proud of the strides I have made as a researcher, but igniting the same passion for science communication in undergraduates and fellow scientists is among my proudest accomplishments. It is through my interactions with students, community members, and people with aphasia that I feel truly fulfilled, so I am grateful to Hannah for her vision to start this publication and the tenacity to see it through. Here's to ten more issues!

Best,
Portia Washington

HOW WE PROCESS SPEECH SOUNDS: A WORKING MODEL

by Sarah Perotta

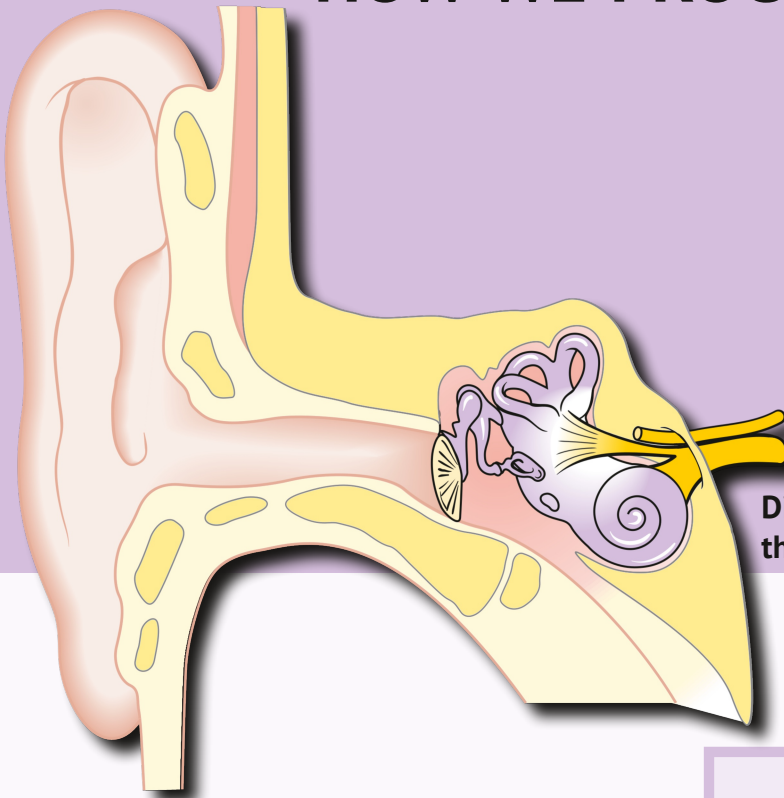


Diagram showing
the inner ear

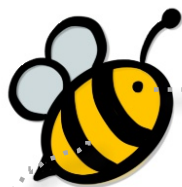
Understanding language takes a lot more brain power than you might think. Breaking down what we hear, how we interpret it, and making sense of those words is essential for effective communication. The brain is constantly processing auditory information to distinguish meaningful sounds. When someone says your name in a crowded room, your brain picks it out from all the surrounding noise. This is because our brain actively organizes, prioritizes, and interprets what we are hearing. Some experts believe that if this process does not work properly, it could be due to something called auditory processing disorder (APD). The Spoken Language Processing Model helps us understand how sound turns into language, involving not just hearing but also thinking and memory. These processes happen so quickly that we often don't realize how much our brains are doing to make sense of the world around us.

The Spoken Language Processing Model

helps professionals choose the right tests to figure out how someone understands and uses spoken language. These tests can look at how well a person hears sounds, remembers them, understands whole words, or if they can follow complex orders. Problems with understanding spoken language may be many issues combined. Difficulty may involve hearing, language, or cognition. Everyone struggles with different challenges and it's important not to group everyone with the same diagnosis together. Instead, we need to work on patient-centered care. This model helps professionals better understand where the breakdown is happening so they can help people more effectively. Our brains work quickly and efficiently to distinguish sounds, interpret speech, and make sense of the world around us. By understanding how our brains work to process language, we can better appreciate the challenges faced by those with auditory or language processing difficulties and work toward solutions that improve communication for everyone.

Source: Medwetsky, L. (2011). Spoken language processing model: Bridging auditory and language processing to guide assessment and intervention. *Language, speech, and hearing services in schools*, 42(3), 286-296.

HOW SENSITIVE ARE WE



1



2



3

4

by Kaitlyn Wood

Whether you have heard someone jokingly mock themselves about getting old after struggling to stand up, or experienced that yourself, almost everyone thinks about aging. Due to its inevitability, a lot of research aims to understand how our brain and behavior change as we get older.

Research on aging is important, and an area where more research is needed on older adults that have also acquired a language disorder on top of the difficulties that come with aging. This has forced me to pose the question, "What about aphasia?" While there are different kinds of aphasia, it is broadly defined as an acquired communication disorder that is usually a result of a stroke or traumatic brain injury.

Nearly 85% of people have never heard of this disorder, yet there are over two million people with aphasia in the U.S (NAA 2024). Aphasia will not affect everyone later in life, but for the approximately two million people whose communication has been affected, it is important that they are also represented in speech and language research.

WHAT IS SPEECH PERCEPTION?

Speech perception, or the ability to recognize and manipulate units of spoken language such as words, is a critical aspect of life that can change over the lifespan. One method our lab uses is to

measure "phonetic sensitivity" by using the Visual Analog Scale (pictured above). **This task involves rating blended words or sounds. For example, along a seven-point scale between the word "bee" and "pea," you might rate a good example of the word "bee" as a "1" or a good example of the word "pea" as a "7," but maybe a weird blend between the two words as more like a "4."**

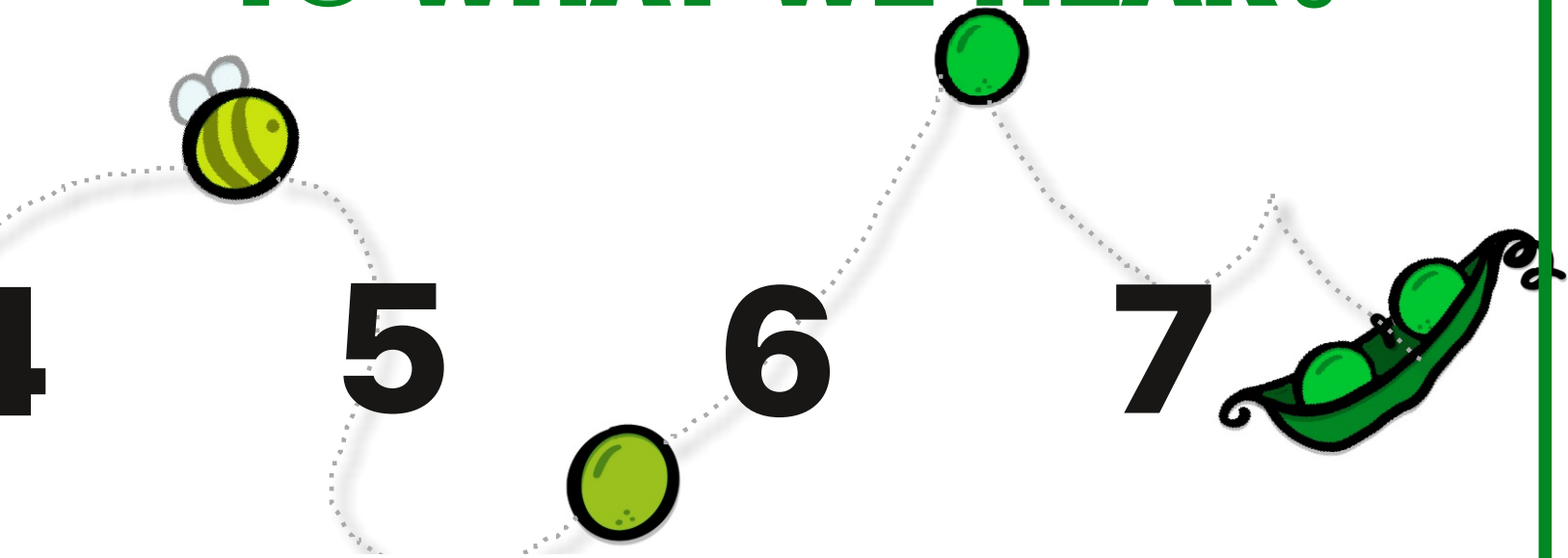
Measuring this in typically aging adults matters because everyone ages, and the results can also serve as a baseline for comparison among other populations, such as people with aphasia. The organization of language looks different for everyone, and people vary in how they respond to these sounds, which may give insight into how language lives in the brain.

THE SCIENCE OF SPEECH SOUND SENSITIVITY

In a study conducted by Emily Myers, Matt Phillips, and Erika Skoe in 2024 at the University of Connecticut, they focused on finding a correlation between the sound rating task described above and how well someone could understand sentences in background noise. They were looking to see how this relationship may change over the lifespan, so they tested people between 18 and 67 years old.

The results show that the speech sound sensitivity task reveals differences between healthy adults. This is interesting because even

TO WHAT WE HEAR?



though everyone in the sample could *hear* the speech sounds (based on their hearing tests), some people almost never used the middle of the scale. In contrast, other people could hear the tiny differences, and repeatedly labeled the weird blended sounds as "4." **People with this gradient perception were better at hearing sentences in background noise than other people in the study.** Some older adults were able to perceive the sounds gradiently, just like the younger adults.

THE CURRENT STUDY

People with aphasia were not included in that study, but currently the Language and Brain Lab is conducting a follow up study that mirrors their 2024 work, only now people with aphasia are the focus. Myers explained that **"the end goal is to understand how it all works to help people with aphasia."**

Myers also noted that this ongoing study is relevant because, **"it helps [researchers] understand what kind of capacities someone with a damaged particular part of their brain have remaining to help them with language recovery."**

The expansion of this research is critical in obtaining new answers for people with aphasia. Everyone deserves to have the ability to communicate, and Myers' research is one step in the right direction.

Next time you think about aging, try going beyond the "getting old" tropes and think about it on a deeper level. Aging is full of uncertainty, and understanding the effects are a public health effort. Any one of us could be impacted by aphasia, and it's important to educate ourselves on the types of difficulties people with aphasia face. Something as simple as being able to tell the differences between speech sounds may be taken for granted now, but that same ability may be a "small win" towards someone else's speech processing goals.

I watched a stroke impact my grandmother's life so I am very passionate about becoming a speech-language pathologist and raising awareness on aphasia. The fact that Myers 2024 study is being expanded to focus on people with aphasia gives me hope that research is taking a step in the right direction. People with aphasia matter. They deserve to be heard and understood the same way "healthy" adults do.

Source: Myers, E., Phillips, M., & Skoe, E. (2024). Individual differences in the perception of phonetic category structure predict speech-in-noise performance. *The Journal of the Acoustical Society of America*, 156(3), 1707-1719. <https://doi.org/10.1121/10.0028583>

BRIDGING THE GAP

Highlighting efforts to address disparities in research

by **Ashley Douglass**

Despite advancements in healthcare, some communities face significantly worse health outcomes than others. For example, people of color (POC) are twice as likely to experience a stroke, and its associated consequences like aphasia, compared to their white peers. One explanation lies in the powerful influence of social determinants of health (SDOH), which are the conditions in which people are born, grow, live, work, and age. Health is a complicated jigsaw puzzle where every piece matters. For many marginalized communities, several pieces are often missing or ill-fitting. These gaps shape overall well-being and may affect how people strive in their day-to-day lives¹. When these gaps go unfilled, they contribute to persistent health disparities, particularly in underserved communities.

To reduce these inequities, researchers must implement inclusive, community-based methods that engage diverse populations and emphasize long-term, systemic change. Aphasia is not the only disorder shaped by these factors, and race is not the only determinant. A wide range of social conditions – such as education, employment, and socioeconomic status – deeply influence health outcomes and should be actively considered by language scientists in both research and practice.

At UConn, the Health Disparities Institute (HDI) exemplifies this mission by championing equity-focused, community-led research across



The Health Disparities Institute located in Hartford, CT
Photo sourced from health.uconn.edu/health-disparities/

the state. By fostering trust, encouraging collaboration, and centering community voices, we can shift the narrative around research and pave the way for systemic change. If researchers are not members of the communities they study, it is essential that they consult community members; otherwise, they risk overlooking critical lived experiences

Under the leadership of Dr. Linda Sprague-Martinez, the HDI brings together healthcare providers, policymakers, and community members to maximize their impact in advancing health equity. This collaborative approach emphasizes a simple but powerful truth regarding health research – when communities are a part of the solution, real changes happen. Community engagement is essential for ensuring research is both transformative and relevant⁴.

Building Trust Through Reciprocity

Now that we understand the importance of including diverse participants, and the need for them to tell us what profoundly affects their quality of life, we must first focus on building trust. Building trust is like finding the missing pieces of a puzzle. Without it, the picture remains incomplete, leaving gaps where collaboration and progress should be. Unfortunately, for many marginalized communities (such as Black, Latino, and Indigenous populations) these missing pieces are the result of a long history of exclusion and

exploitation in research, so the call for more diverse participants is not always well-received.

Rather than being treated as collaborative partners, these communities have often been viewed as “experimental guinea pigs,” leading to interventions that overlook their needs and perpetuate cycles of health inequity². One of the most infamous examples is the Tuskegee Syphilis Study, where Black men were denied treatment and subjected to unethical experimentation without their consent. Similarly, Indigenous communities have experienced a history of research exploitation that completely disregarded their cultural knowledge and practices. This betrayal has left many communities understandably wary of research, often perceiving it as benefiting institutions rather than individuals³.

These deep-rooted experiences have created a skepticism legacy that researchers and the HDI must work diligently to overcome to foster equitable partnerships. For research to create a complete and meaningful picture, researchers have to show community members that their safety is a priority and that their cooperation will help other people. Using accessible language, addressing real-time concerns, and showing how participation leads to positive change are key to fostering long-term engagement⁴. Even if individual participants do not directly and/or immediately benefit from participating in a study,

their involvement helps inform policies, improve healthcare practices, and shape future interventions.

When research moves beyond a transactional process to a collaborative effort, it ensures that findings can apply to the real-world, and ultimately to diverse populations. Here, at the Language and Brain Lab, we strive to understand how diverse backgrounds influence speech perception, communication disorders, and other cognitive processes. Our lab is among several organizations at UConn that aim to elevate culturally responsive research. Being responsive in our field may mean clearly addressing the impact of linguistic diversity and the broader cultural factors that shape communication. Together, these efforts lay the groundwork for a more equitable healthcare and educational system.

¹de la Vega, P. B., Losi, S., Martinez, L. S., Bovell-Ammon, A., Garg, A., James, T., ... & Kressin, N. R. (2019). Implementing an EHR-based screening and referral system to address social determinants of health in primary care. *Medical Care*, 57, S133-S139.

²Gonzales, E., Shen, H. W., Wang, Y., Martinez, L. S., & Norstrand, J. (2016). Race and place: Exploring the intersection of inequity and volunteerism among older black and white adults. *Journal of Gerontological Social Work*, 59(5), 381-400.

³Martinez, L. S., Carolan, K., O'Donnell, A., Diaz, Y., & Freeman, E. R. (2018). Community engagement in patient-centered outcomes research: benefits, barriers, and measurement. *Journal of Clinical and Translational Science*, 2(6), 371-376.

⁴Rubin, C. L., Martinez, L. S., Chu, J., Hacker, K., Brugge, D., Pirie, A., ... & Leslie, L. K. (2012). Community-engaged pedagogy: A strengths-based approach to involving diverse stakeholders in research partnerships. *Progress in community health partnerships: research, education, and action*, 6(4), 481-490.



Model of Community Engagement illustrating the HDI's mission, vision, and values statements.

Photo sourced from health.uconn.edu/health-disparities/

UConn's HDI centers cultural humility and transparency in its community partnerships. Through practices like participatory budgeting and co-designed research protocols, the HDI restores power to communities who have long been marginalized in health research.

COMMUNITY

by **Amelia DePino**

Conducting research provides the power to shape future interventions and decision-making, but only when it reaches the people who need it. For populations like individuals with hearing difficulties or with aphasia, community engagement is essential to provide evidence-based interventions. To ensure our research in the Language and Brain Lab is current and relevant, we have taken it upon ourselves to reach out to the community through our Instagram, open house events, and our Spoken Word digest.

Based on the needs of the community, we provided accessible versions of complex discoveries during the open house we hosted in Fall 2024, which in turn deepened our connection to the people who helped us generate these findings. Even with our Instagram, we have been able to provide infographics on research, while also showing a little bit more about ourselves, what we do, and why research matters. Getting involved with the community leads to stronger and more translatable outcomes that will continue to bridge the gap between science and the public.

Scientific research can have a larger impact when researchers build connections beyond traditional academic collaborations. When engaging participants, individuals from the community, and professionals from the arts, we foster meaningful and accessible research for the public. Expanding studies to involve the public also ensures that the implications of scientific discoveries are widely understood and applied in a responsible way.

Dr. Danielle Dick, a psychologist at Rutgers University, also knows about the benefits of community-engaged research. The Spit for Science project exemplifies this approach by centering community-engaged research, which

allows the public to have an active role in the research process. The project seeks to include as many undergraduates as possible in trying to understand substance use and mental health challenges. Although it will take more time and effort, the benefits like promoting awareness, advancements in support and funding, and strengthening participation will overall benefit society in the future. In terms of how research is conducted, involving dynamic and diverse groups of individuals can help scientists grow the impact of their work, thus making it more valuable for society.

When scientists engage with the community, we aim to build trust, reliance, and credibility to promote the best research for them. We have explored the efforts of the LAB Lab and rethought the elements of evolving research through Dick's work with Spit for Science. Allowing science to become more accessible can enhance impactful outcomes that make a real difference within society.



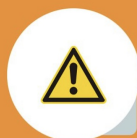
Amelia said,

"I was so intrigued by community engagement and the efforts that should be implemented, so I decided to talk with two experts at UConn outside of our lab that do this all the time! The highlights of our interview are on page 10."

ENGAGEMENT



MARCH 3RD, 2025



MYTHS VS FACTS

ABOUT LANGUAGE,
BRAINS, AND RESEARCH

UConn Language and Brain Lab

37 posts 190 followers 153 following

Run by: the RAs
PI: Dr. Emily Myers

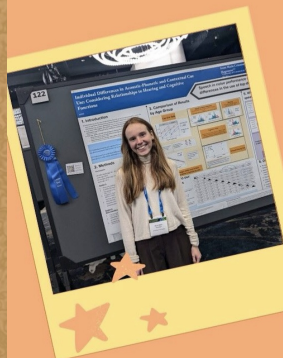
We're interested in speech & language processing. Follow to meet the members and learn about our research!

<http://pp.jotform.com/>

MAY IS NATIONAL SPEECH - LANGUAGE - HEARING MONTH

This month we raise awareness about Speech-Language-Hearing health! We also celebrate the important work Speech-Language Pathologists and Audiologists do. This month we encourage early support for communication challenges and promote tools that help make communication accessible for everyone!

BREAKING NEWS!



The LAB Lab is so excited and proud to announce...

Anne Marie is defending her dissertation!

On Tuesday April 1st at 9:00am

** DM us if you would like the zoom link to tune in! **



Holly, Anne Marie, Naomi, Hannah M., Hannah O., and Portia with all of the open house goodies!

Research Scientist
Speech, Language, and
Hearing Sciences
University of Connecticut



Dr. Woodruff-Gautherin



TRUST AND PRESENCE



Dr. Raudales

Associate Professor
Plant Science and
Landscape Architecture
University of Connecticut



“I lived for the 10 minutes afterwards where we talked about how that person felt and what did this mean to the family.” Community engagement isn't just about service—it's about listening deeply and being present for people during moments of vulnerability.

“It's about developing the relationship, and the trust and the confidence that you can be a useful resource for them. We get a lot of trust from the people we work with.” Establishing trust in community engagement is essential for long-term success.



“We build trust by being consistent and present. It's not one meeting or one project—it's showing up again and again, even when there's no agenda except to listen.” Showing up is key to deepening relationships within the community.



COMMUNICATION AND RELATIONSHIPS

“We try to adapt the research that we do to fit within the cultural context and the specific needs of the community, and that's why we don't always go in with a pre-established plan.” Community outreach is not just about solutions—but flexibility and tailoring approaches based on cultural and contextual needs of the community.



“All the events we run, we run because someone told us that we needed them... would I have known that literacy and shoreline events were needed? No, not unless somebody told me.” Importance of designing outreach based on what families ask for, rather than what researchers assume is needed.



ADAPTABILITY AND SUPPORT

“So when they hire you, they really set the foundation to say, you're going to apply research and it's going to be connected to your extension work... It's a reciprocal type of relationship where they feed my interest and they... support a lot of my grad students, and I can give back to them information.” Effective communication isn't one sided—it's reciprocal.



“It's not just about being inclusive—it's about shifting power. Community members are the experts of their own lives. We're here to listen, learn, and amplify.” True community engagement addresses the needs of the community by letting them speak for themselves.



UNIVERSITY OF CENTRAL FLORIDA APHASIA HOUSE



The UCF Aphasia House provides a home-like setting where people with aphasia can participate in speech therapy in comfort.

COMMUNITY AND YOGA IN APHASIA:

A CONVERSATION WITH DR. LAUREN BISLICK

by Ava Sheard



What do you think of when you hear the word “yoga?” Maybe, “deep breath in, hold it, deep breath out” or “close your eyes and think of your happy place,” or even just “stretch.” You may also think of things like, downward dog, warrior pose, hot pink mats, and body bending. However, “yoga” is just an umbrella term for the numerous ways to relax the mind and body. Through various exercises, yoga creates a sense of calm and peace for oneself. It does not need to be strenuous or exhausting to be successful. Because of this, it is an accessible practice for people of any age, ability, or condition.

As a student studying speech-language pathology, I am passionate about mental health advocacy for older adult populations that goes beyond the language-based care they may already receive. For instance, imagine a traumatic event that completely alters how you communicate day-to-day. When people are impacted by an acquired language disorder, such as aphasia, they experience new types of stress or frustration when expressing themselves to others. Routine tasks such as ordering at a restaurant, picking up a prescription, or talking on the phone suddenly include communication barriers that never existed before. Ultimately, people with aphasia often become overwhelmed and anxious about this drastic change, leading to more difficult social experiences.

With this in mind, yoga can serve as a healthy approach to navigating these big feelings and learning to feel grateful for your body in new ways, without requiring communication. Yoga can be used as an outlet for people with aphasia to release tension and live life at their own pace. In a study conducted by Dr. Lauren Bislick and colleagues that was published in 2023,

researchers worked to create a virtual yoga program that measured the effects of yoga on pain, language, and emotion for people with aphasia.

I had the honor of interviewing Bislick; a rising influence in aphasia research. As a professor in the Communication Sciences and Disorders Department at the University of Central Florida, she has made incredible professional and personal impacts on her community. Bridging advocacy, research, and awareness for people with aphasia, she is the Director of the university’s Aphasia House, where the yoga study occurred. The Aphasia House is a student-led initiative offering traditional and intensive aphasia programs. It is a one-of-a-kind experience because it takes place in a home-like setting, with the different treatment rooms decorated like rooms in a house.

While creating this warm and approachable environment, Bislick said the house’s main purpose is to **“incorporate client-centered care with an emphasis on a life participation approach, utilizing the best evidence-based treatments available.”** These treatments include counseling, social work, and physical and occupational therapy, from which people with aphasia and their families can benefit. **“We acknowledge that aphasia happens to the whole family,”** Bislick said. **“It doesn’t happen in a vacuum.”**

Bislick is both a clinician *and* researcher, so she intends to fill the research-to-practice gap within the field to improve the quality of life for aphasia populations. Working towards finding the next steps for aphasia care and research, she collaborated with other professionals to create this yoga study for people with aphasia.

“One of the things yoga teaches us is how to be present in difficult situations,” she stated. Sharing her personal journey with yoga during her doctoral program helped to navigate feelings of anxiety and impostor syndrome while pursuing her PhD. **“When things got hard, it’s what got me out of bed in the morning...[you] are practicing to breathe in the discomfort.”**

During the pandemic, people with aphasia could rarely leave their homes and were ultimately isolated from the outside world. Because of this, it was important to Bislick to use the yoga program to **“bring community to people with aphasia in a safe space.”** Wanting

to share the same sense of ease that yoga once brought her, she was inspired to make the opportunity accessible for people with aphasia. During an 8-week program, they met virtually to participate in chair yoga hosted by a professional yoga therapist.

Throughout this study, the people with aphasia were asked how yoga influenced personal factors in their lives. It was found that there were **general increases in resilience and sleep quality, and significant reductions in stress and pain.** Additionally, their testimonials reflected positive feelings toward the yoga program:

“...my depression and anxiety are at an all-time high due to permanent brain damage and my stroke...breathing in yoga can help me.”

“...all these other things in my world, they’re tough, but I do yoga and...it calms me down...”

“I wanted to accept myself with aphasia, and now I have.”

This research is crucial because it introduces an alternative and non-traditional rehabilitation strategy available for aphasia populations. Unfortunately, people with aphasia have been historically excluded from this type of research. This is due to researchers' lack of recruitment for studies because of their general unwillingness to learn how to talk and connect with people with aphasia and other acquired language disorders. However, people with aphasia represent 20% of stroke survivors. Thus, this blatant underrepresentation in research has hindered the potential health and language benefits for older adults with aphasia.

However, researchers like Bislick are creating experiences to help people with aphasia thrive in social settings that don’t require communicating on demand. **“Yoga helps to free up other cognitive resources to allow a more comfortable space for communication,”** Bislick said. **“If [people with aphasia] can use these tools to breathe through it, it may help encourage conversation.”**

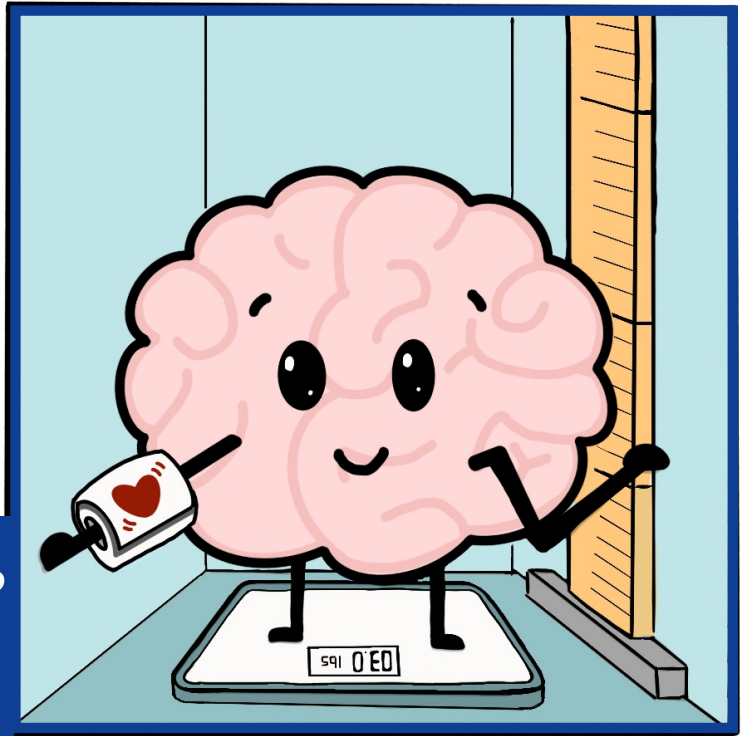
To this day, the yoga program is still running. Its success has spread beyond the University of Central Florida and is even being offered at an inpatient hospital in Orlando, Florida, for individuals who are in the early stages of post-stroke recovery. It is a glimpse of triumph, and one step closer to a more aphasia-friendly world. Without having to travel far, this virtual yoga program provided a beneficial and accessible way for people with aphasia to feel a sense of community right from the comfort of their homes. Additionally, it allows these folks to unlock a hobby that can be used in their everyday lives outside of speech and language therapy. With appropriate accommodations set, more programs such as this would increase social engagement and emotional support for people with aphasia.

Navigating life post-stroke, yoga can be an opportunity to ground yourself, feel present, and create an environment centered around relaxation or, as Bislick said, **“so that people with aphasia can participate in society to a full extent.”**

BRAIN CHARTS FOR THE HUMAN LIFESPAN

How does the brain change?

by Mikayla Robinson



Brain scans are now widely used in research and medicine, but unlike height and weight, there are no standard charts to track brain changes over time. The current gap in research lies in tracking how lifestyle choices impact brain changes over time. Factors like exercise, music, and daily habits can influence brain activity and structure. Exploring how lifestyle choices impact brain health can help ensure that scientific findings are better understood and applied to improve everyday life. Brain charts, like the one shown in this article, help researchers interpret a person's brain health in the context of data from different ages, lifestyles, and diagnostic factors.

Collecting and analyzing MRI data requires a lot of time, resources, and people. When we combine this with behavioral data, or the surveys and other tasks participants do in the lab, the process becomes even more complicated. While it takes time to gather this data, one benefit is that we're able to improve our understanding of what makes a "healthy" brain. For example, several lifestyle factors affect brain health, but without large representative samples it's difficult to know how big of an effect our choices actually have on our brains. Studying these factors has the potential to influence more accurate

interventions.

The research to date shows that simple lifestyle changes, like regular exercise or learning new skills, can shape the brain in positive ways. By using brain charts, we can actually see how these habits impact brain structure and activity, which makes it clear how small adjustments in daily life can lead to big improvements in brain health.

Recent studies have conducted brain scans from infancy through older adulthood to create reference charts that show how brain structures like **gray matter (cell bodies of brain cells)**, **white matter (the connections between brain cells)**, and **cerebrospinal fluid (CSF)** change over time. These charts give us a visual map of brain development and aging. For example, they show that gray matter peaks early in life while white matter continues building into our 20s, and CSF steadily increases with age as brain volume naturally declines.

By mapping these changes across different groups, researchers can spot when brain development falls outside the expected range. This is especially helpful in identifying and understanding neurodevelopmental and psychiatric conditions. For example, people with

ADHD, autism spectrum disorder (ASD), schizophrenia, depression, and bipolar disorder often show brain changes that deviate from typical patterns and brain charts help highlight those shifts.

Brain scans are widely used in medicine and research now, but up to this point, there has not been a way to track changes in the brain that are easy to understand. There is also a gap in tracking the impact of lifestyle on the brain. Brain charts help plug these gaps. They allow researchers to study how habits like exercise, musicality, mindfulness, and lifelong learning can mold the structure and function of the brain over time. It is also exciting that some studies aim to combine data from people all over the world, making neuroscience more representative. This matters because brain health is not the same across people, and research that is more representative

gives us better and more accurate results for everyone.

At the end of the day, brain health isn't just a scientific concept—it's personal. The way we live our lives, from the music we like to how often we exercise, has a real, measurable impact on our brains. Brain charts offer a new way to visualize and understand these changes, making research findings more practical and accessible. The more we know about how lifestyle shapes the brain, the better we can take care of ourselves and others. Investing in brain health creates a future where science can guide us toward healthier minds, proving that small choices today can lead to a stronger, more resilient brain tomorrow.

Source: Bethlehem, R. A., Seidlitz, J., White, S. R., Vogel, J. W., Anderson, K. M., Adamson, C., ... & Schaare, H. L. (2022). Brain charts for the human lifespan. *Nature*, 604(7906), 525-533.

This chart shows what typical development looks like. It helps researchers spot changes in a person's MRI that may signal clinical disorders.

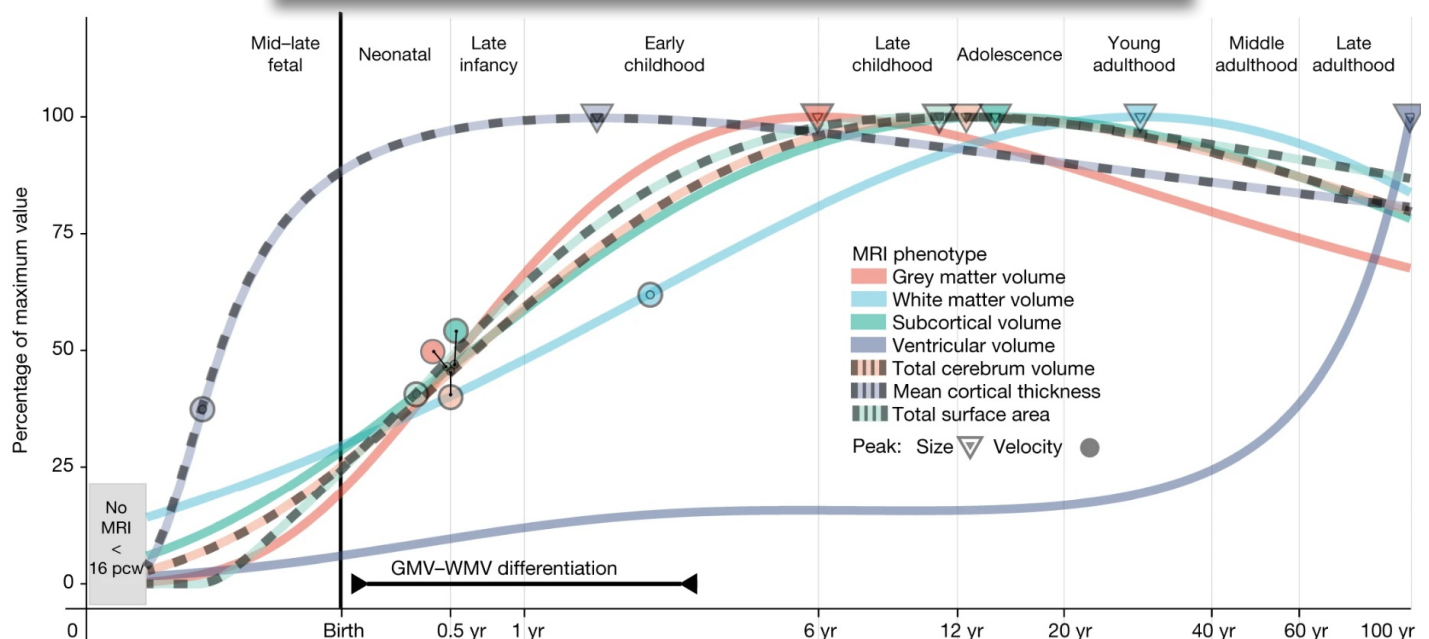


Figure from: Bethlehem, R. A., Seidlitz, J., White, S. R., Vogel, J. W., Anderson, K. M., Adamson, C., ... & Schaare, H. L. (2022). Brain charts for the human lifespan. *Nature*, 604(7906), 525-533.

Your brain grows fast early on. After that, different parts of it peak and fade at different times, giving researchers a map of what normal aging looks like.

PHONETIC PLASTICITY

HOW WE LEARN AND ADAPT TO SPOKEN LANGUAGE

by Brianna Rodriguez

Christopher Heffner and Emily Myers explore phonetic plasticity; or the brain's ability to adapt to changes in speech sounds like when adjusting to an unfamiliar accent or a fast talker. Myers explains, "**Plasticity means flexibility. Maybe different people are better at shifting and moving their categories around in order to help them understand.**" In this context "categories" mean what you consider a "b" versus a "p."

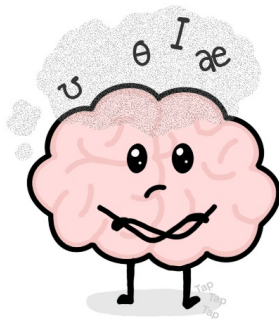
In this study college students were tested on different types of learning:

PASSIVE	→	picking up new sounds naturally without trying
ACTIVE	→	intentionally practicing; focusing on new sounds
RATE	→	adjusting to talking faster or slower
ACCENT	→	adjusting to different pronunciations of the same sound



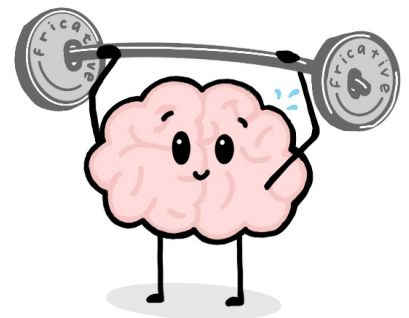
Data from those tasks helped the authors figure out:

1. Are different **types of learning** related?
- and
2. What do the **best learners** have in common?



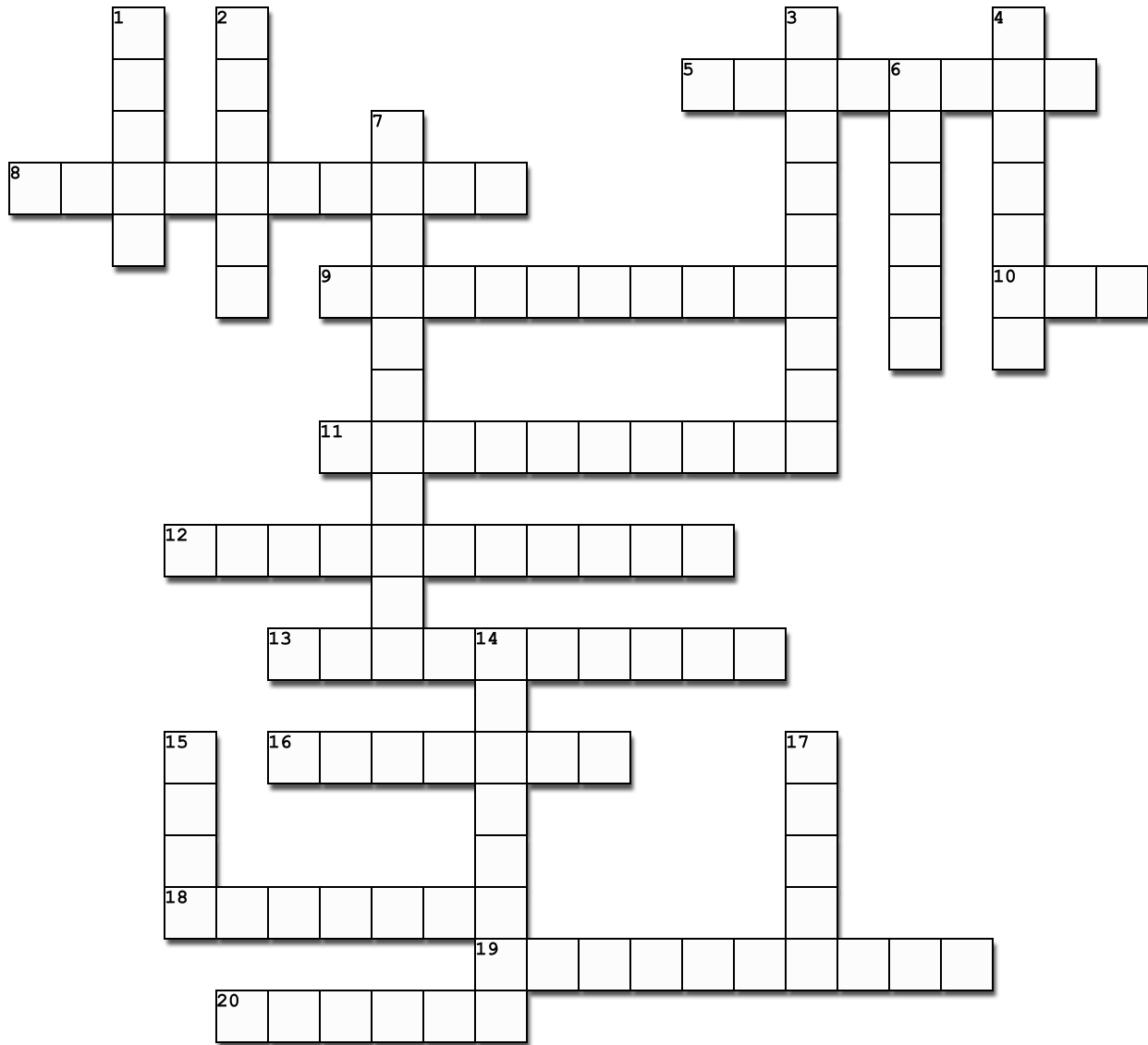
They found that phonetic plasticity is a spectrum, where some people are naturally quick to adapt to new speech patterns while others need more practice and exposure. This research may help explain why language learning feels easier for some, and how targeted training could help improve speech skills in general.

Phonetic plasticity describes just how adaptable we are when it comes to processing speech sounds. It's possible that people can become more flexible, so training is a future direction for these researchers! Whether you're learning a new language or working through everyday speech challenges, your brain's ability to adapt is always evolving.



Source: Heffner, C. C., & Myers, E. B. (2021). Individual differences in phonetic plasticity across native and nonnative contexts. *Journal of Speech, Language, and Hearing Research*, 64(10), 3720-3733. https://doi.org/10.1044/2021_JSLHR-21-00004

2025 Spoken Word Crossword Puzzle



Created using the Crossword Maker on TheTeachersCorner.net

Across

5. Type of plasticity that varies between people, making language learning easier for some
8. How we interpret and make sense of speech sounds
9. Central theme across all articles: the human capacity for ____ in the face of change
10. Cerebrospinal fluid, abbreviated
11. The brain's ability to adapt and change, whether learning new sounds or recovering from injury
12. Brain connections that keep growing into one's 20s
13. Quality that increased in people with aphasia who practiced yoga
16. Researcher who studied how people adapt to unfamiliar speech sounds
18. Acquired communication disorder often caused by stroke
19. Brain tissue that peaks early in life
20. Leading cause of aphasia, affecting over 2 million Americans

Down

1. UConn researcher studying speech sound sensitivity across the lifespan
2. Something our brains learn to adapt to, according to phonetic plasticity research
3. The HDI emphasizes ____-engaged research to advance health equity
4. UCF professor who created a virtual yoga program for people with aphasia
6. Goal of the Health Disparities Institute's community-based research
7. Yoga practice that helps people with aphasia manage stress
14. What shapes our daily lives in profound and personal ways
15. Ancient practice adapted by Dr. Bislick to help stroke survivors build resilience
17. What researchers must build with communities historically excluded from research

This issue is brought to you by the:



LANGUAGE AND BRAIN
LABORATORY

follow us on Instagram: @uconn.lab.Lab

Have feedback or want to pitch a story that should be in the next issue?

Email us at: uconnmyerslab@gmail.com

Interested in participating in language research?

At the UConn Language and Brain Lab, we're always looking for participants (age 18 and over). We're making a list of adults who may be interested in participating in our studies in the future. **We are also looking for adults with aphasia** who are interested in participating in our studies!

You can sign up to be contacted about future studies by completing a brief survey on our website or contacting us directly.

There is no payment for completing the survey, but you may qualify for future studies that compensate between \$15 and \$30 an hour.

TO FIND OUT MORE:

Visit our website: myerslab.uconn.edu

**Contact us at: 860-486-0931 or
uconnmyerslab@gmail.com**



**Follow to registration
survey and more
information**