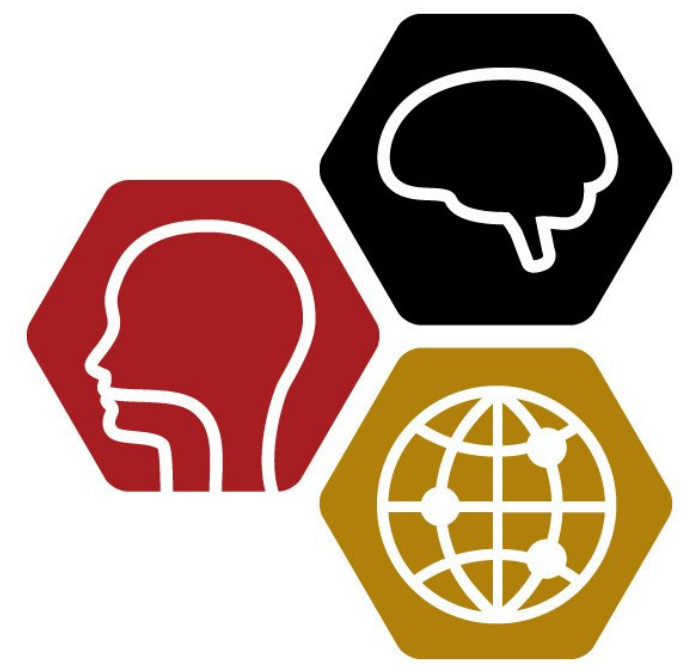


2021 Newsletter

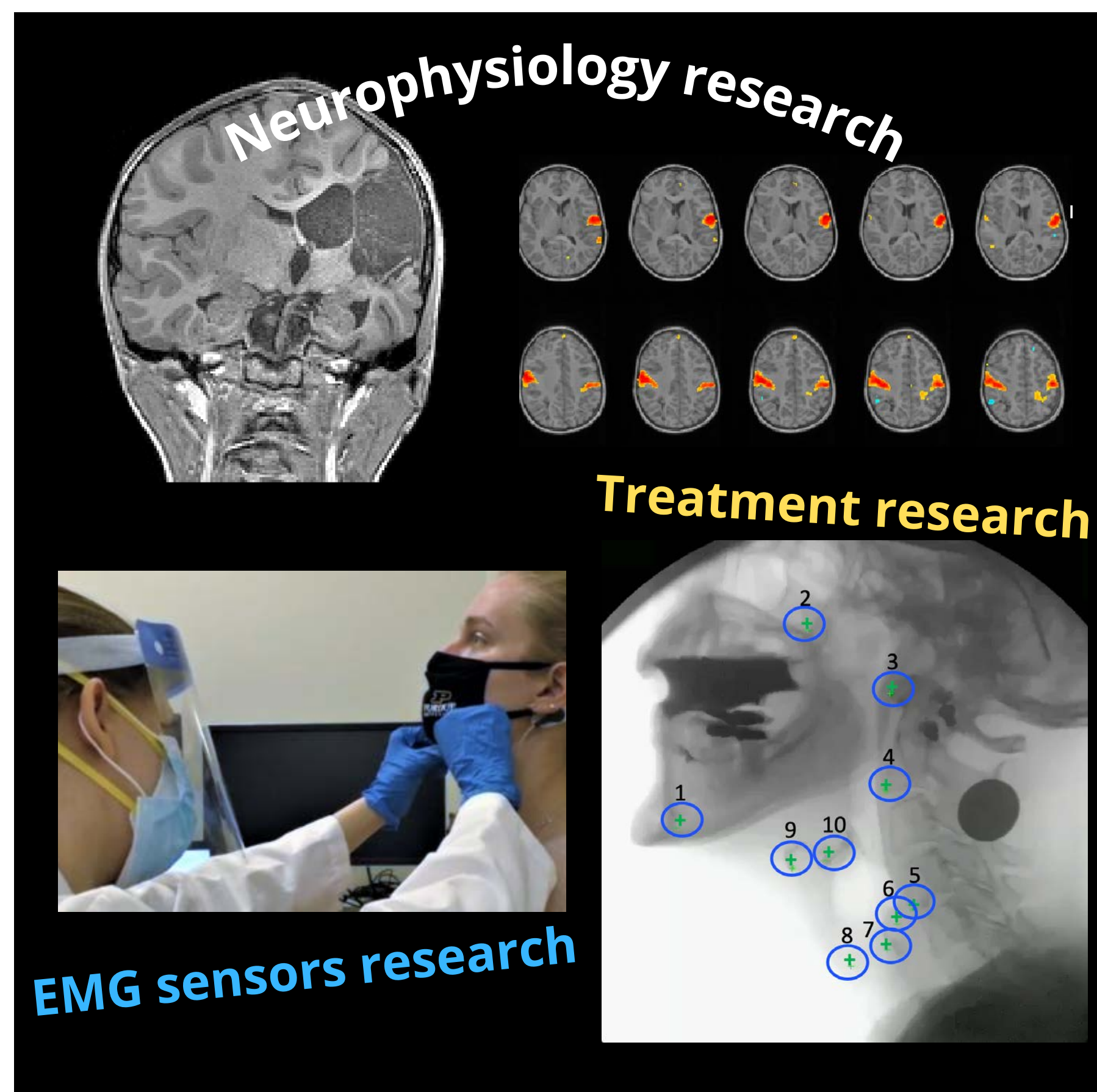
Imaging Evaluation and Treatment of Swallowing Research Laboratory



Welcome to the 2021 Newsletter!

The 2021 newsletter describes our team's efforts to continue our top notch research, education, and clinical service during the second year of this global pandemic. The dedication and hard work of our members turned challenges into opportunities, obstacles into innovations, and ensured we had another very productive and fulfilling year. We are very thankful to our collaborators and our funding support for helping us achieve our goals for one more year! Enjoy our updates!

1. **Conferences and Presentations**
2. **Publications and Media**
3. **Grants and Awards**
4. **Greulich Family Research Gift Award & Endowment**
5. **I-EaT Research Clinic News**
6. **Service & Advocacy**
7. **About our Team**



About our research

The faculty and staff of our lab are dedicated to high-level basic and clinical research and improving the health and quality of life of children and adults with swallowing disorders (also known as dysphagia). The research conducted in our lab focuses on the use of advanced imaging to understand the neural underpinnings of swallowing in the normal population and following neurological trauma or intervention, developing and evaluating new neurorehabilitation interventions for neurogenic dysphagia, and the development and validation of wearable technologies and telehealth systems to test the effectiveness of providing swallowing rehabilitation from a distance.



Scan the code
to access our
lab website!



Conferences & Presentations in 2021

Invited Lectures - National & International (selected)

International

1st Congress of the Mexican Dysphagia Society (virtual)

Malandraki, G.A. (2021). Swallowing neurophysiology: How our findings through the years can improve dysphagia care.

2nd World Dysphagia Summit & 26th&27th Japanese Society for Dysphagia Rehabilitation Meeting (hybrid)

Malandraki, G.A. (2021). The feasibility of using an adapted version of the Intensive Dysphagia Rehabilitation Approach (IDRA) in early recovery.

1st Brazilian Dysphagia Summit (virtual)

Malandraki, G.A. (2021). Telehealth for oropharyngeal dysphagia (Magna Lecture-Keynote).



Dr. Malandraki was invited to give four international talks this past year

National

American Speech-Language-Hearing Association Convention

Malandraki, G.A. (2021). Rising united through telepractice for dysphagia management: Lessons from the COVID-19 pandemic.

Dysphagia Research Society Meeting (virtual)

Malandraki, G.A. (2021). The impact of COVID-19 on the tele-management of dysphagia: current and future directions.

National & International Peer-Reviewed Presentations (selected)

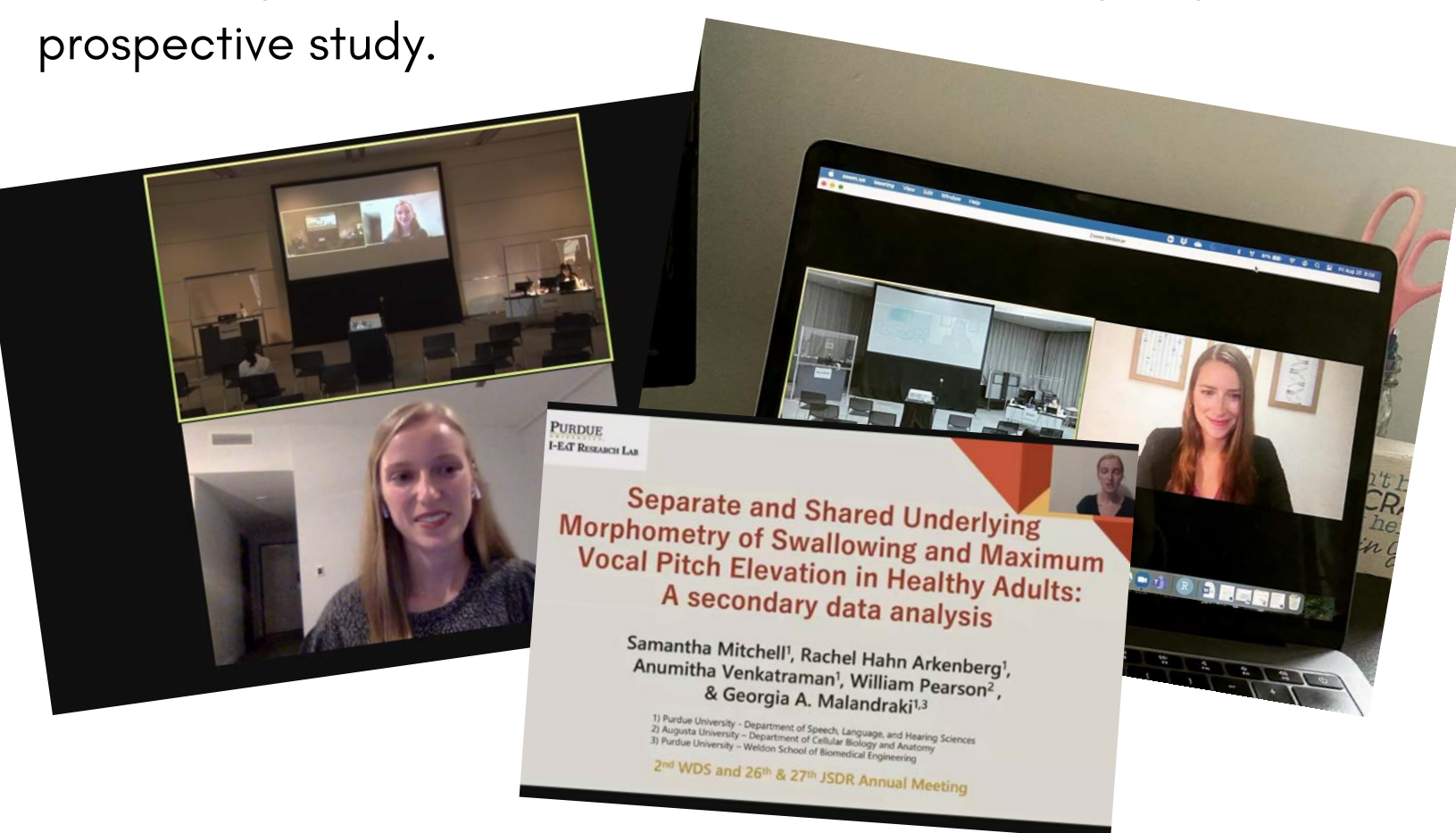
International

2nd World Dysphagia Summit, Nagoya, Japan (hybrid)

Mitchell S.S., Hahn Arkenberg, R., Venkatraman, A., Pearson, W., & Malandraki, G.A. (2021). Separate and shared underlying morphometry of swallowing and maximum vocal pitch elevation in healthy adults: A secondary data analysis.

2nd World Dysphagia Summit, Nagoya, Japan (hybrid)

Hahn Arkenberg, R., Mitchell, S.S., Brown, B., & Malandraki, G.A. The development of orofacial muscle physiology for swallowing continues into late childhood: an ongoing prospective study.

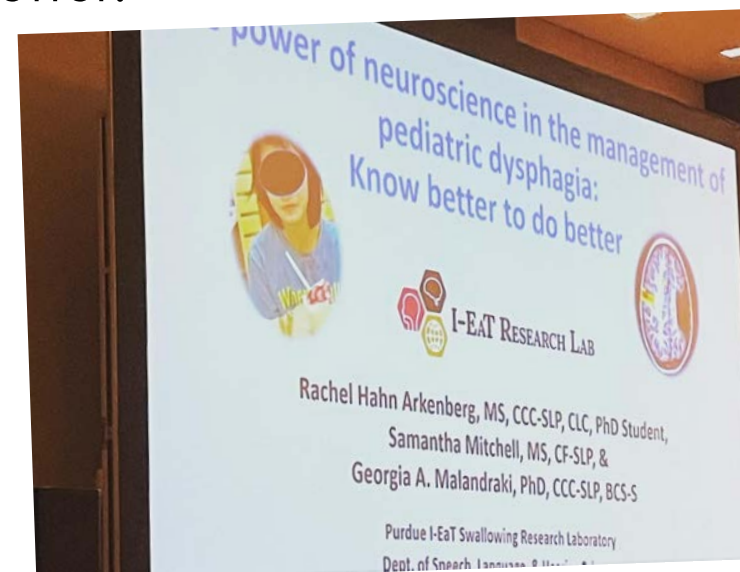


Graduate students, Rachel Hahn Arkenberg & Sam Mitchell presenting their work at the 2nd Dysphagia World Summit

National

American Speech-Language-Hearing Association, Washington, DC

Hahn Arkenberg, R.H., & Malandraki, G.A. (2021). The power of neuroscience in the management of pediatric dysphagia: Know better to do better.



PhD student, Rachel Hahn Arkenberg, giving her first oral presentation at ASHA with Dr. Malandraki!

Dysphagia Research Society Meeting (virtual) [5 presentations]

- Malandraki, G.A., Mitchell, S., Brown, B., Hahn Arkenberg, R., Lundine, J., Burdo-Hartman, W., Craig, B., Goffman, L. (2021). Feeding skills & eating efficiency are reduced in self-feeding school-age children with unilateral CP: An unrecognized reality.
- Hahn Arkenberg, R.H., Alvar, A., McGowan, B., Cheng, H., & Malandraki, G.A. (2021). The role of white matter in the neural control of swallowing: A systematic review.
- Mitchell, S., Fujiki, R., Oliver, A., Craig, B., & Malandraki, G.A. (2021). Effects of two head/neck strengthening exercise regimens on the neuromuscular control of functional swallowing in healthy older adults.

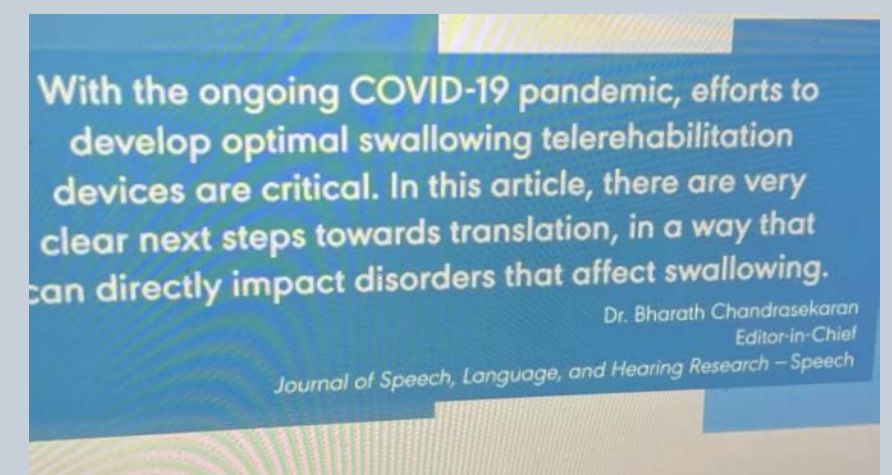
Publications & Awards in 2021

PUBLICATIONS

- Malandraki, G.A., & Hahn Arkenberg, R. (2021). Advances in swallowing neurophysiology across pediatric development: Current evidence and insights. Curr Phys Med Rehabil Rep <https://doi.org/10.1007/s40141-021-00334-3>.
- Alvar, A., Hahn Arkenberg, R.H., McGowan, B., Cheng, H., & Malandraki, G.A. (2021). The role of white matter in the neural control of swallowing: A systematic review. Frontiers in Human Neuroscience, 28 June 2021. <https://doi.org/10.3389/fnhum.2021.628424>
- Malandraki, G.A., Hahn Arkenberg, R.H., Mitchell, S., & Bauer Malandraki, J.L. (2021). Telehealth for dysphagia across the life span: Using Contemporary Evidence and Expertise to Guide Clinical Practice during and after COVID-19. American Journal of Speech Language Pathology, 30(2), 532-550.
- Borders, J., Sevitz, J.S., Bauer Malandraki, J.L., Malandraki, G.A., & Troche, M. (2021). Objective and Subjective Clinical Swallowing Outcomes via Telehealth: Reliability in Outpatient Clinical Practice. American Journal of Speech Language Pathology, 30(2), 598-608.
- Miles, A., Connor, N., Varindani Desai, R., Jadcherla, S., Allen, J., Brodsky, M., Garand, K., Malandraki, G.A., McCulloch, T. Moss, M., Murray, J., Pulia, M., Riquelme, L., & Langmore, S. (2021). Dysphagia care across the continuum: A multidisciplinary Dysphagia Research Society Taskforce report of service-delivery during the COVID-19 global pandemic. Dysphagia, 36, 170-182.

Publication Highlight!

- **Our 2020 paper in JSLHR describing our pre-clinical trial with the first version of our wearable EMG sensor (Kantarcigil et al., 2020) was awarded the very prestigious Journal's Editor Award for the speech section! Read below what the JSLHR Editor in Chief said about the impact of our article in the Awards ceremony!**



ASHA JOURNALS **ACADEMY**

AWARDS

Awards Received by Lab Students - Our students rock!!

Rachel Hahn Arkenberg

- ASHFoundation 2021 New Century Scholars Doctoral Scholarship

Samantha Mitchell

- 2021 HHS Outstanding Master's Student Award

Mackenzie Zorn

- Outstanding SLHS Senior Award
- 2nd place (tied) poster at Purdue Undergraduate Research Conference

Caroline Sarbieski

- 2nd place (tied) poster at Purdue Undergraduate Research Conference

Macy Griffis

- NISO Outstanding Sophomore Award



Rachel Hahn Arkenberg being awarded her prestigious ASHFoundation Scholarship

Awards & Honors Received by Our Lab Director (Dr. Malandraki)

- **2021 Fellow, American Speech-Language-Hearing Association**
- **2021 American Board of Swallowing and Swallowing Disorders Distinguished Research Award, Annual Dysphagia Research Society Meeting (for paper presented)**
- **2020-21 Faculty Entrepreneur Learning Academy Fellowship, Purdue University**



Dr. Malandraki being inducted as an ASHA Fellow 2021 at the November ASHA Convention

Grants & Funding in 2021

Continued Research Grants – Progress

We have been continuing our NIH-funded studies and we are happy to share exciting updates

- **NIH NIDCD R21: Cerebral Palsy and Typical Development Research**

- Study completed in 2021
- We presented some of our findings at the Annual Dysphagia Research Society (DRS) Meeting and the World Dysphagia Summit and we have 3 more related presentations at the upcoming 2022 DRS meeting!
- Four manuscripts are under review and/or in final stages of preparation. Stay tuned!

Brief summary of our findings (NIH NIDCD R21)

- We confirmed that there is a range of swallowing and motor speech skills in children with unilateral CP (age range 7-12 years).
- We found preliminary relationships between swallowing, speech, and language in these children.
- Children with unilateral CP require more muscular effort to complete even simple swallowing and speech tasks compared to typically developing children of the same age.
- Brain activity adaptations that these children develop are complex and unique.

- **NIH NIBIB Trailblazer Grant: Wearable Technologies for Dysphagia Treatment (collaborative grant)**

- **Our lab developed a new improved EMG sensor technology this year!**
- Data collection & analysis are in progress
- A new treatment trial is just about to begin!



Students Jennine Bryan & Arica Rusco help our collaborator Kevin Berry manufacture our new sensor in the wet lab

New Research Grants in 2021

Purdue Center for Aging and the Life Course (CALC) Faculty Research Development Award

Effects of wearable biofeedback for the rehabilitation and tele-rehabilitation of swallowing disorders in older adults (PI: Malandraki)

Purdue Center for Families & Family Research Grant

Family and child influences on complementary feeding and communication development (PI: Hahn Arkenberg)

NIH NINDS R01 (collaborative with Dr. Troche) - [pending funding decision]

Rehabilitation of airway protection in Parkinson's Disease: Comparing in-person and telehealth service delivery models (PI: Troche; Purdue PI: Malandraki)

Greulich Family Research Gift Award & Endowment

On March 16th 2021, Deanna Marie Greulich, beloved wife of 53 years to David C. Greulich and devoted mother and grandmother, left our world. Her life, however, was not in vain. Dee was a Registered Nurse, first with the University of Cincinnati and later with Tri-Health, retiring in 2007. Throughout her long career, Dee's caring touch helped to heal countless individuals as she blended skill with a compassionate heart. Despite her extensive healing experience, Dee suffered from dysphagia (likely secondary to three cervical surgeries she had in the past) which, unfortunately, remained un-diagnosed for several years. Despite her frequent complaints about swallowing difficulties, their severity was often minimized or misunderstood.

In Dee's memory, and in an effort to help improve dysphagia identification/diagnosis and treatment, her husband, Dave (a proud Purdue alumnus) and her family generously offered a research gift and a memorial endowment to our team. The generous gifts will be a substantial help in our team's work to:

- accelerate our efforts in the development and use of wearable technologies for the diagnosis and treatment of dysphagia,
- support our student researchers,
- increase awareness about dysphagia in mainstream medicine practices and educate the public.



Deanna & David Greulich on their 50th anniversary

**THANK YOU to
the Greulich
family for
their generous
support!**

David C. Greulich & Deanna M. Greulich Research Gift Award

In support of research activities within the I-EaT Lab at Purdue (Director: Malandraki)

Total Amount of gift: \$150,000 (over 5 years)

Deanna M. Greulich, RN Memorial Endowment

In support of students involved in research activities within the I-EaT Lab at Purdue (Director: Malandraki)

Total amount of endowment: \$25,000 (lifetime)

I-EaT Research Clinic News & Lab Culture

The Purdue I-EaT Clinic

The Purdue I-EaT Clinic serves adult and pediatric populations with difficulties in swallowing that may have occurred, for example, as a result of a stroke, traumatic brain injury, treatment for head and neck cancer, or because of disorders/diseases such as Parkinson's disease, cerebral palsy, inflammatory myopathies, and multiple sclerosis, among others. The in-house clinic features cutting-edge assessment and treatment equipment. Our clinical faculty consists of one of the best multidisciplinary teams of dysphagia experts in the state.

2021 I-EaT Clinic Updates

The Purdue I-EaT Clinic is led by our Clinical Director and Board Certified Specialist in Swallowing and Swallowing Disorders, Jaime Bauer Malandraki.

Here are some of our 2021 clinic updates:

- We provided comprehensive evaluations to more than 15 new patients and provided ongoing treatment to several of them.
- We offered hybrid dysphagia treatment sessions, using both in-person and telehealth service delivery models!
- We participated in the Rock Steady Boxing to support our patients with Parkinson Disease!

Purdue University's Dysphagia Study Group (soon virtual!)

Our lab is committed to serving the community by creating a support network for local clinicians. In the Purdue Dysphagia Study Group, clinicians are welcome to partake in discussions about clinical cases, recent research findings, and hot topics in dysphagia. To learn more, please contact one of the facilitators: Jaime Bauer-Malandraki.

Email: jaimebauere@purdue.edu

Scan the code to access the clinic's website!



LAB Culture

Maintaining a positive and fun lab culture has always been a priority for our team! This year we took advantage of the outdoors and continued to support each other any chance we got!

Read about our lab culture in the Purdue HHS News by clicking on this [link](#)!



Service & Advocacy in 2021

This year we also wanted to highlight our continued efforts to support our profession through dedicated service and advocacy

In addition to our commitment to research, education, and clinical service, our team is equally committed to helping our professional community locally, nationally, and internationally. Here is a brief summary of our efforts to advocate for our profession, continue helping clinicians across the globe, disseminating easily digestible knowledge, and serving others in 2021!

"The best way to find yourself is to lose yourself in the service of others."
Mahatma Gandhi

Our team developed video content to support ASHA's advocacy efforts for Medicare coverage of dysphagia telehealth services.



In August we testified at the Indiana State House to support the Indiana Speech Language Hearing Association's efforts to advocate for expansion of telehealth usage by speech language pathologists and audiologists in our State.

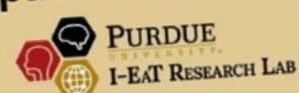


We participated in 2 fundraising events (DRS and ASHFoundation runs) and celebrated World Cerebral Palsy Day!



Reminder

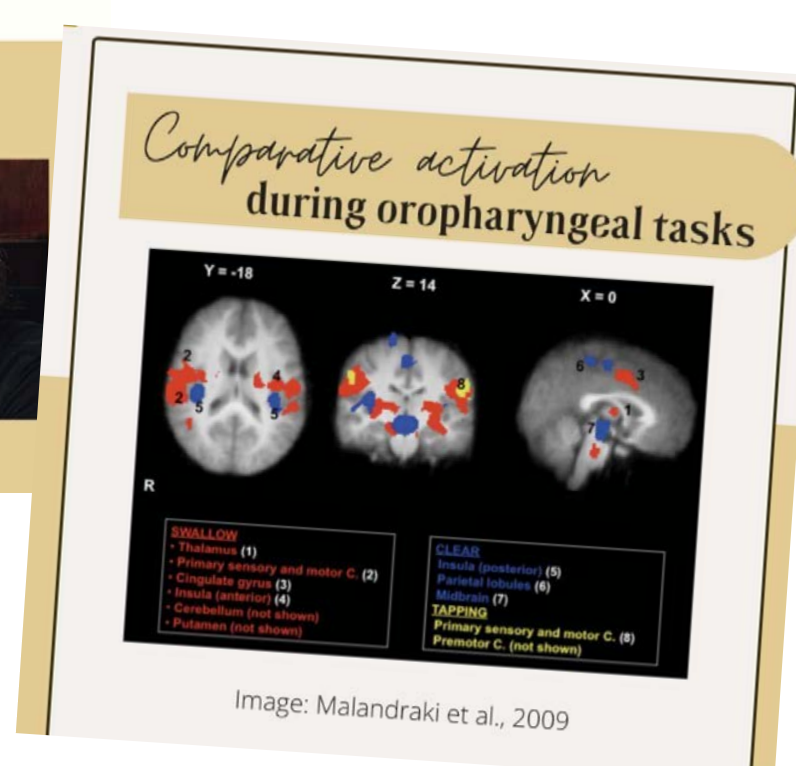
Swallowing is NOT just a reflex, but a patterned response!



We initiated an extensive social media campaign to disseminate our research findings through the years in lay terms for the public

"Ensuring the professional wellness of students is essential to their future and that of the professions."

JAIME BAUER MALANDRAKI, 2021



Dr. Malandraki was asked to write a special commencement address for the class of 2021. This was posted on Dysphagia Cafe. Available [here](#)

This year, our lab director shared her knowledge in 3 podcasts:

- "First Bite" podcast (pediatric feeding) – listen [here](#)
- "Telepractice Today" podcast (dysphagia telepractice) – listen [here](#)
- AANEM podcast (dysphagia in neuromuscular disorders) with Dr. Garand – listen [here](#)

Current Core Lab Team

Director:

Georgia A. Malandraki, PhD, CCC-SLP, BCS-S

Core Doctoral Student:

Rachel Hahn Arkenberg, MS, CCC-SLP

Doctoral Students co-Mentored:

Shie Kantor, MM, MA, CCC-SLP

Anny Alvar, BS

Research Associate:

Barb Brown, MS, CCC-SLP

Master's Students:

Samantha Mitchell, BS

Jennine Bryan, BS

Undergraduate Students:

Arica Rusco

Chloe Kim

Macy Griffis

Ellie Jensen



Recent Alumni: Where are they now?

Samantha Mitchell, MS, CF-SLP:

Samantha graduated from the Purdue MS SLP program and is now completing her clinical fellowship at Akron Children's Hospital.



Mackenzie Zorn: Mackenzie graduated with a BS from Purdue and joined the Purdue MS-SLP 2023 cohort this fall.



Caroline Sarbieski: Caroline graduated with a BS from Purdue and is attending the University of Minnesota for her Master's Degree in SLP.



ADDITIONAL 2021 HIGHLIGHTS

• Dr. Malandraki:

- was elected a member of the National Academy of Sciences, Engineering and Medicine (NASEM) ad hoc Planning Committee for the 2022 Telehealth Workshop,
- and continued her service to the Dysphagia Research Society as the President-Elect.

• Rachel Hahn Arkenberg:

- finished her second preliminary doctoral project,
- and was appointed as a member of the Dysphagia Research Society Student Council.

• Anny Alvar:

- graduated with her PhD in December!

NEWEST ADDITIONS!

This year we welcomed four new members: Arica Rusco, Macy Griffis, & Ellie Jensen who are all undergraduates in SLHS, and Chloe Kim, who is an undergraduate student in BME.

**To learn more about our lab, our work,
and our current studies**

Scan the code
to access our
lab website!



Or visit: <https://www.purdue.edu/i-eatlab/>