

DEPARTMENT OF COMMUNICATION SCIENCES AND DISORDERS
COLLEGE OF ALLIED HEALTH SCIENCES

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

FOR APPLICATION YEAR: 2023

PROJECT TITLE: Investigation into voice and swallowing biomechanics for those with and without Unilateral Vocal Fold Paralysis

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Project Description

You will be joining the Voice & Swallow Mechanics Lab (vsmechlab.com) on a project that aims to investigate laryngeal behaviors during voice and swallowing processes using a high-speed laryngoscopy (a flexible camera passed through the nose and into the throat to see the voice box). We plan to do so in people with and without Unilateral Vocal Fold Paralysis (UVFP), as people with UVFP are suspected to have poor vocal fold closure for both voice and swallowing.

Voice and swallowing are distinct functions but share the same anatomy and physiology. There is a current clinical need to better understand the relationship between these processes across different populations in order to enhance the ability to diagnose and treat dysfunction (i.e., dysphonia and dysphagia). In our project, we will be focusing on patients with UVFP as their voice AND swallowing are often both affected by their vocal fold paralysis. Our main objective is to compare images captured during voicing and swallowing to understand how these two functions relate. Our secondary analysis will also include acoustics and aerodynamics, as well as voice and swallowing-related questionnaires.

Please see some brief examples of work you may help with below:

- Your role in this project would be to help in consenting participants, collecting questionnaires related to the study, collecting voice measures from healthy controls and people with UVFP, setting up for the study session (e.g., preparing required forms and equipment), and analyzing collected data (IRB ID: 2022-0686).
- You will also be shadowing researchers while they are using laryngoscopes, which will provide you with medical-based experiences in patients who are

healthy and disordered.

- You will be trained to examine and measure landmarks from images taken of the larynx (voice box), as well as acoustic analyses via specialized software.

Qualifications:

- Preferred academic background: speech-language pathology or some associated field such as psychology, linguistics, education, medicine, or neuroscience
- Pre-requisite skills: Comfort with Microsoft office applications like PowerPoint, Excel, and Word; Comfort with online platforms like Webex and Zoom
- Preferred skills: strong attention to detail, well-organized, works well with others, enthusiasm

Knowledge/Skills UPRISE scholar will acquire:

- Data ethics and integrity via CITI Training, IRB on-boarding, and lab on-boarding
- Experience with research participants: how to discuss research consent, how to facilitate research sessions.
- Knowledge of voice disorders (e.g., laryngeal anatomy and physiology).
- Experience with literature reviews and online database searches.
- Cross-discipline collaboration skills: speech-language pathology, engineers, physicians (laryngology).