



Project Title: Acoustic analysis of nasality in patients with amyotrophic lateral sclerosis		Code: FHS4
Host School / Institute: Faculty of Health Sciences		Address: Voice Research Laboratory, Speech Pathology, Faculty of Health Sciences, The University of Sydney
Certificates & Clearances required: No		
Primary Supervisor: A/Prof Cate Madill		
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Co-Supervisor/team: The student will work with a voice research team in Dr Liang Voice Program, Voice Research Laboratory, Faculty of Health Sciences, led by Associate Professor Cate Madill, Director of Voice Research Laboratory and Director of Dr Liang Voice Program within Discipline of Speech Pathology. The team also includes Dr Duy Duong Nguyen , Postdoc Research Associate.		
Project Type: Data Analysis; Laboratory based		
Project Category: Speech Pathology; Neuroscience		
Skills / Attributes of a successful student: This project would suit a student who is diligent, motivated, organised, meticulous, and has a strong interest in voice, speech pathology, and laryngology. <ul style="list-style-type: none"> - Attention to detail is required for working with voice data (editing and measurement). - Good problem-solving skills and good time management skills. - Some experience with Microsoft Excel is essential. - Medical, medical science, science, or speech pathology background. 		
Project Keywords: Amyotrophic lateral sclerosis; Acoustic analysis; Nasality; Formant		
Project Description: <p>Background: Amyotrophic lateral sclerosis (ALS) is a fatal, progressive neurodegenerative disease of the human motor system. There has been no reliable biomarker or definitive diagnostic test to evaluate progression of the condition. Acoustic analyses have been used to monitor voice and speech characteristics of ALS over time. However, changes in nasality in speech due to abnormal nasal-oral coupling as the disease progresses has not been well understood. Previous research has suggested that nasality is presented acoustically via the first formant.</p> <p>Aims: To evaluate the changes in nasality characteristics over time using acoustic analyses of the first formant in patients with ALS.</p> <p>Expected outcome: This student project will find out whether the first formant was a sensitive measure to reflect the changes over time in clinical and speech characteristics of ALS. This will help determine whether this can be a robust outcome measure in ALS. The student will produce the results of the first formant measurements across different time points.</p> <p>Methods: Voice data have been obtained in a completed Phase 2, multi-centre, open-label longitudinal study (the Lighthouse project). The student will be working closely with a voice research team member in the Dr Liang Voice Program, Voice Research Laboratory, The University of Sydney. He/she will use dedicated voice analysis programs to edit the sound files and extract the first formant from voice recordings of ALS patients.</p> <p>Student's involvement: The student will learn basic knowledge about voice production and acoustic voice characteristics. He/she will also learn the involvement of sub-components of normal speech production and the changes in those components in ALS patients as presented via acoustic voice analyses. The student will practice, undertake, and interpret the results of acoustic voice assessment. He/she will receive support from the research team in Dr Liang Voice Program and the clinicians involved in the wider project.</p>		