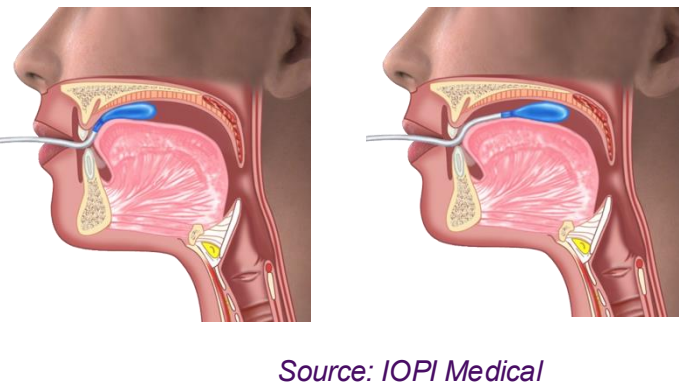
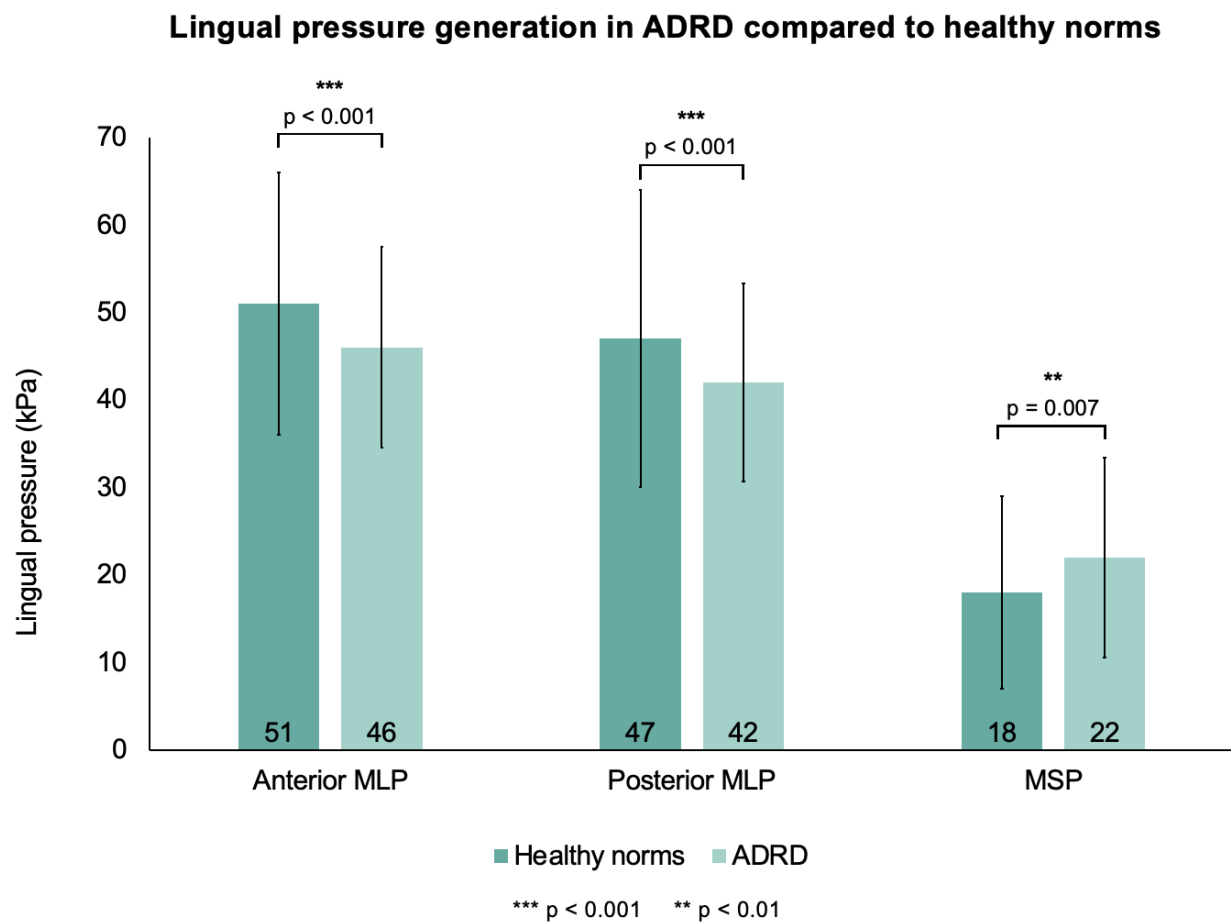
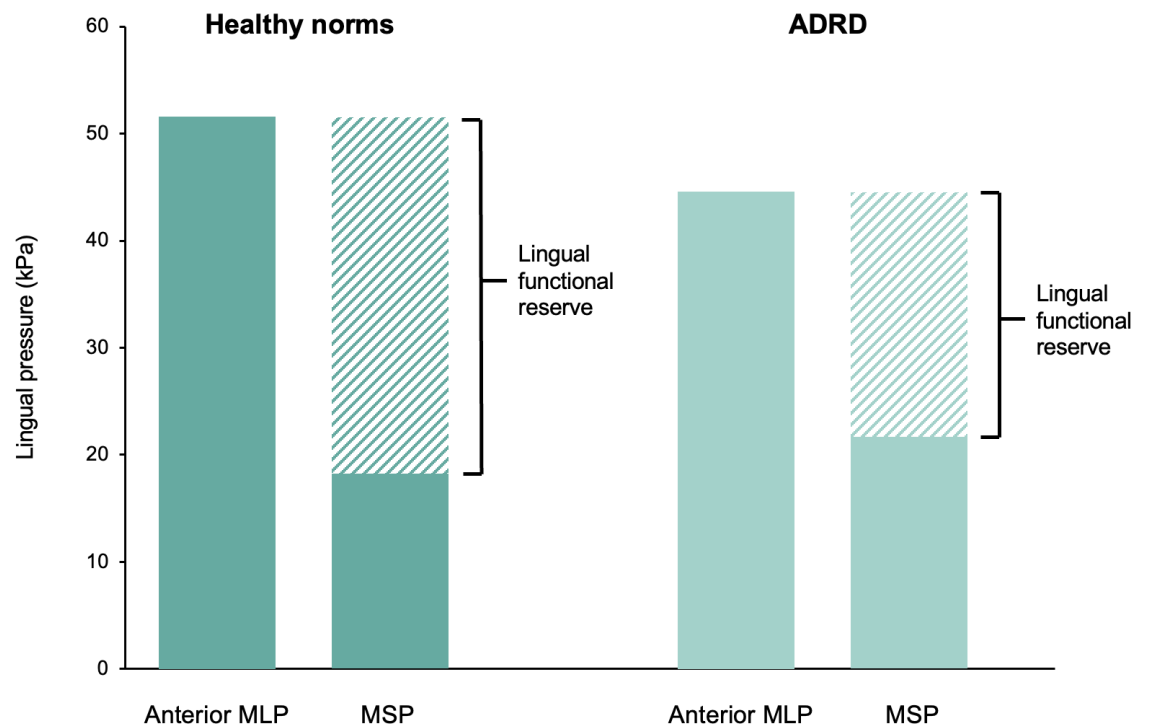


Characterizing Lingual Functional Reserve Capacity Among Persons with Alzheimer’s Disease and Related Dementias

Madelyn Savage-Black¹⁻⁴, Meredith Mackowicz-Torres^{1,2,4}, Sara Gustafson^{1,2,4}, Raele Donetha Loy^{1,2,4}, Nicole Rogus-Pulia¹⁻⁴

¹Department of Medicine – University of Wisconsin-Madison ²Center for Health Disparities Research – University of Wisconsin-Madison ³Department of Communication Sciences and Disorders – University of Wisconsin-Madison ⁴Geriatric Research Education and Clinical Center – William S. Middleton Memorial Veterans Hospital

Reduced lingual functional reserve in ADRD may drive greater relative tongue effort during swallowing.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
- The tongue plays a central role in swallowing through bolus manipulation and propulsion. - Reduced lingual pressure generation can lead to increased oropharyngeal residue and prolonged mealtimes.¹ - The extent to which lingual pressure generation is impaired in ADRD remains poorly characterized. - We aimed to characterize lingual pressure generation and functional reserve in ADRD and compare these to established normative data.	- Older adults (≥50) with mild to moderate ADRD (Clinical Dementia Rating Scale² score ≤2) - Anterior and posterior maximum lingual pressures (MLPs) and mean saliva swallow pressure (MSP) in kilopascals (kPa) were collected using the Iowa Oral Performance Instrument (IOPI). - Lingual functional reserve was calculated using an adapted measure: anterior MLP minus MSP. Descriptives, correlations, and t-tests were generated in RStudio.  Figure 1: Anterior and posterior IOPI bulb placements.	N=64 (mean age 79.5 years, SD 6.8; 25% female) Lingual pressure generation in ADRD compared to healthy norms  Figure 2: Maximum lingual pressures are reduced and saliva swallow pressure is elevated in ADRD relative to healthy norms.^{3,4}  Figure 3: Lingual functional reserve (anterior MLP – MSP) is depleted in ADRD compared with healthy norms.^{3,4}	- In this ADRD cohort, lingual strength was significantly reduced compared to healthy norms.^{3,4} Correspondingly, lingual functional reserve was also depleted, yet saliva swallowing pressure was elevated. - These findings suggest compensatory increases in relative effort during habitual swallowing to maintain function as overall tongue capacity declines. Such adaptations may contribute to more effortful and fatiguing mealtimes. - Further research is needed to confirm these observations and evaluate interventions targeting lingual strength preservation in ADRD.	- Robison, R. D., DiBiase, L., Anderson, A., Wymer, J. P., & Plowman, E. K. (2023). Maximum lingual pressure impacts both swallowing safety and efficiency in individuals with amyotrophic lateral sclerosis. <i>Neurogastroenterology & Motility</i>, 35(4), e14521. - Morris, J. C. (1993). The Clinical Dementia Rating (CDR): Current version and scoring rules. <i>Neurology</i>, 43(11), 2412–2414. - Clark, H. M., & Solomon, N. P. (2012). Age and sex differences in orofacial strength. <i>Dysphagia</i>, 27(1), 2-9. - Drulia, T., Szykiewicz, S. H., Griffin, L., Mulheren, R., Murray, K. L., & Kamarunas, E. (2024). A comparison of lingual pressure generation measures using two devices in community-dwelling, typically aging adults: An important clinical implication. <i>Journal of Speech, Language, and Hearing Research</i>, 67(2), 429-439. CONTACT savage6@wisc.edu www.ssbl.wisc.edu  ALZHEIMER'S ASSOCIATION AAIC 26