Swallowing Impairment Profiles in Individuals with ALS.

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BACKGROUND:

Although 85% of people with ALS (pALS) are reported to develop dysphagia, governing pathophysiologic profiles of swallowing impairment have not been clearly delineated using validated metrics in a large cohort of pALS.

AIMS:

1. Delineate oropharyngeal swallowing impairment profiles using validated metrics in pALS.
2. Examine relationships between oropharyngeal swallowing deficits with age, disease duration, ALS onset type, and ALS global disease progression.

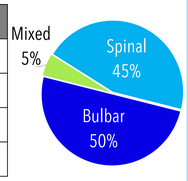
METHODS:

Table 1.Participant demographics.

n= 108 pALS

50% 50%

	Mean (SD)
Age (years)	65 (10.5)
ALSFRS-R Total	34 (7.8)
ALSFRS-R Bulbar	8 (2.8)
ALS Duration (months)	30.4 (23.7)



Procedures & Validated Outcomes:

- ALSFRS-R Scale administered.
- Videofluoroscopic Swallowing Examination (VFSS).
- Independent duplicate ratings (100% agreement required).
- Outcome: Modified Barium Swallowing Impairment Profile™ (MBSImP).
- Oral Total (OT) & Pharyngeal Total (PT) scores derived.

Fig 1. Videofluoroscopic swallowing examination.

Table 1.Bolus protocol.

Bolus Type:
5-mL Thin x 3
Cup Sip Thin x1
Consecutive Sips Thin x 1
Teaspoon Thin Honey x3
Teaspoon Paste x2
¼ Cracker w/ Paste x1

Statistical Analyses:

Spearman's Rho and ANOVA analyses.

RESULTS:

Oral Impairment Profiles:

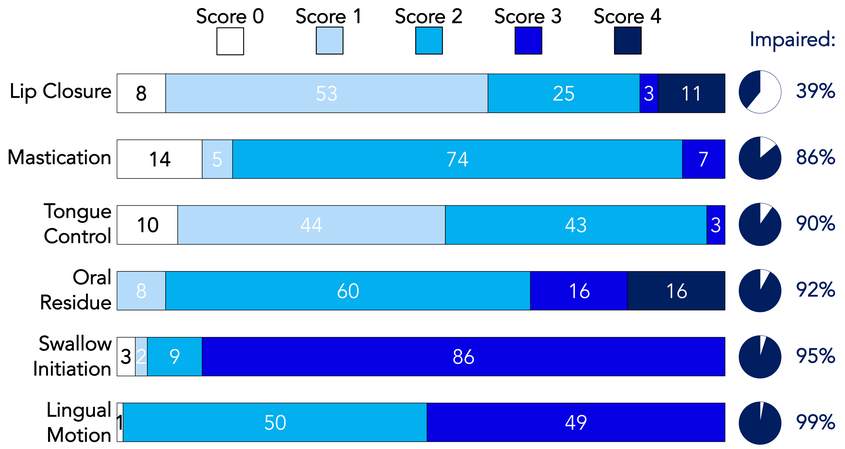


Fig 2. MBSImP™ Oral Components score frequency distributions (ordered from mild to severe) and corresponding binary classifications. Mean OT was 11.48 (SD:2.7), indicating mild-moderately impaired oral phase swallowing deficits.

Pharyngeal Impairment Profiles:

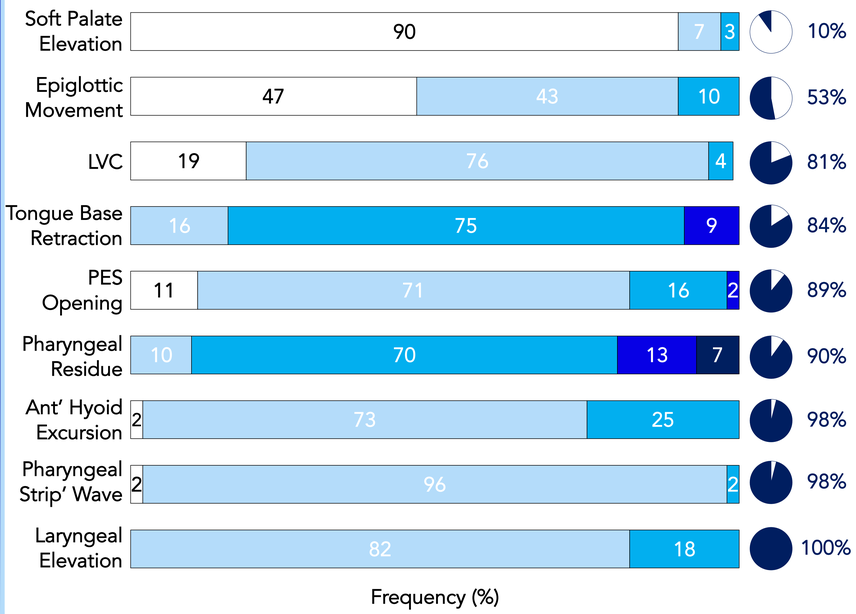


Fig 3. MBSImP™ Pharyngeal Components score frequency distributions and corresponding binary classifications. Mean PT was 9.9 (SD: 3.1), indicating mildly impaired pharyngeal phase swallowing deficits.

Swallowing Deficits Associated with Age

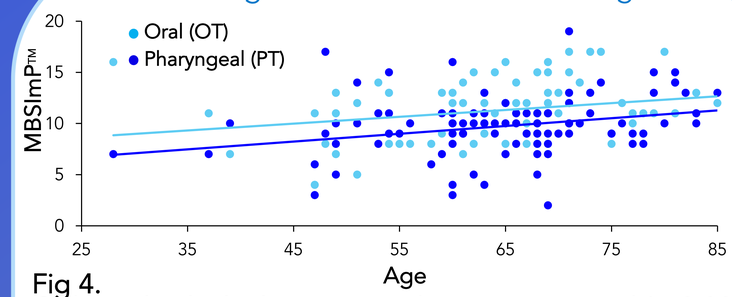


Fig 4.
Older individuals demonstrated more severe oral (r=0.30) and pharyngeal (r=0.22) swallowing impairments, $p<0.05$.

Swallowing Deficits Associated with Bulbar Onset and Disease Progression

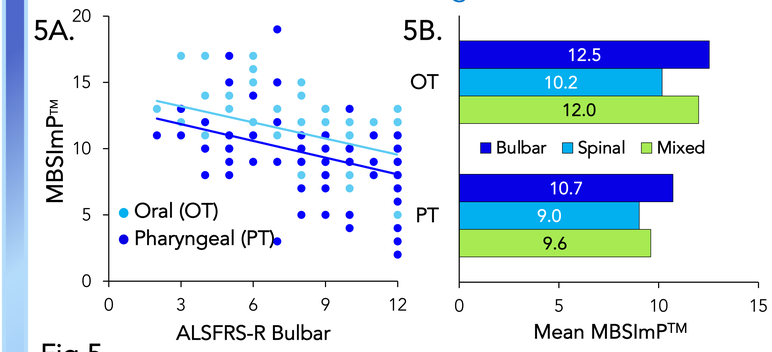


Fig 5.
pALS with greater bulbar disease progression demonstrated more severe oral (r=-0.42) and pharyngeal (r=-0.43) swallowing impairments, $p<0.001$ (5A), and pALS with bulbar onset had more severe oropharyngeal swallowing deficits than those with spinal or mixed onset, $p<0.005$ (5B). No associations were revealed between swallowing impairment and disease duration or global disease progression ($p>0.05$).

CONCLUSIONS:

- Older age, greater bulbar disease progression, and bulbar-onset disease were associated with dysphagia.
- Oral phase deficits were more prevalent and severe.
- These data support the suggested rostral-caudal temporal progression of bulbar dysfunction in ALS.
- A longitudinal study is needed to examine the temporal evolution and progression of swallowing impairment in ALS and is currently underway.

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