

Title: Establishing Normal Swallowing and Breathing Profiles in Healthy adults across the age span

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Experiment #1: Statistical Analysis Plan

Table 1. Test domains and corresponding outcome variables.

Domain	Test	Outcome Variable
Cough	<u>Reflexive cough testing:</u> Capsaicin: (0,50,100,150,200uM) <u>Suprathresholds:</u> Capsaicin: 200uM	-Motor threshold: cough total (ordinal) -Sensory threshold: Urge-to-cough rating (ordinal) -Log transformed Urge-to-cough sensitivity slopes (continuous) -Motor: peak expiratory cough flow (continuous)

Table 2. Specific aims, associated measurements and apriori statistical analyses

Aim		Design	Measurement	Apriori Analysis
1	Reflex cough thresholds	Between group comparison	Sensory and Motor Reflex cough thresholds (ordinal)	Mann-Whitney U test comparing reflex cough thresholds of ALS individuals vs. age/gender matched healthy controls
2	Dose-dependent response curves	Between group comparison	Urge to cough sensitivity (continuous)	A slope calculated by plotting the UTC ratings against capsaicin concentration on a log-log scale, and fitting a linear regression line to the data. Comparisons between ALS vs. controls
3	Voluntary cough	Between group	Peak expiratory cough flow	Mann Whitney U between groups comparison for voluntary cough parameters between healthy controls and individuals with ALS outcomes: peak expiratory cough flow

Experiment #2: Statistical Analysis Plan

For Laryngeal Vestibule Closure (LVC) timing measures, a linear mixed effects model was used to compare the duration of LVC and duration to LVC among the swallow conditions. Pairwise comparisons were used when fixed effects were significant (Sidak corrected). Outcomes from both analyses were significant at $p \leq .05$. Interrater reliability (20% of the data) and intrarater reliability (5% of the data) for the timing of LVC measures were analyzed using single-measure intraclass correlation coefficients (ICCs). ICC estimates and their 95% confidence intervals were calculated with a consistency of agreement definition. All samples were randomly selected for reliability.