

Online Data Supplement: Suprathreshold Reflex Coughs

Number of coughs produced by suprathreshold tartaric acid cough stimulus

We wanted to give a suprathreshold tartaric-acid stimulus of similar intensity to both stroke and control groups. We have reviewed all our reflex cough raw data files and counted the number of coughs (simultaneous spikes on the flow and gastric pressure traces) produced by each participant during a suprathreshold tartaric acid stimulus.

Statistical analyses were performed using GraphPad Prism software. Results for each group are given in Table S2 and a comparison between groups is shown in Table S3 and Figure S3.

Table S2

Number of Reflex Coughs Produced at Suprathreshold Tartaric Acid Concentration*

	Stroke patients	Controls
Number of values	14	18
Minimum	5.000	5.000
25% Percentile	7.000	6.000
Median	11.50	9.500
75% Percentile	15.75	18.75
Maximum	21.00	29.00
Mean	11.43	12.33
Std. Deviation	5.155	7.585
Std. Error	1.378	1.788
Lower 95% CI of mean	8.452	8.561
Upper 95% CI of mean	14.40	16.11
D'Agostino & Pearson omnibus normality test		
K2	1.612	2.715
P value	0.4466	0.2573
Passed normality test (alpha=0.05)?	Yes	Yes
P value summary	ns	ns

*Suprathreshold tartaric acid stimulus=concentration of tartaric acid required to produce five or more coughs.

Table S3

Results of an unpaired t-test to compare number of reflex coughs elicited at maximum strength tartaric acid for stroke and control groups.

Column A	stroke
vs	vs
Column B	normal
Unpaired t test	
P value	0.7050
P value summary	ns
One- or two-tailed P value?	Two-tailed
Difference between means	-0.9048 ± 2.367
95% confidence interval	-5.738 to 3.928

Figure S3

Scatter dot plot to show the number of coughs elicited by the maximum strength of tartaric acid administered to each participant. Horizontal lines show mean and the 95% confidence interval for the mean.

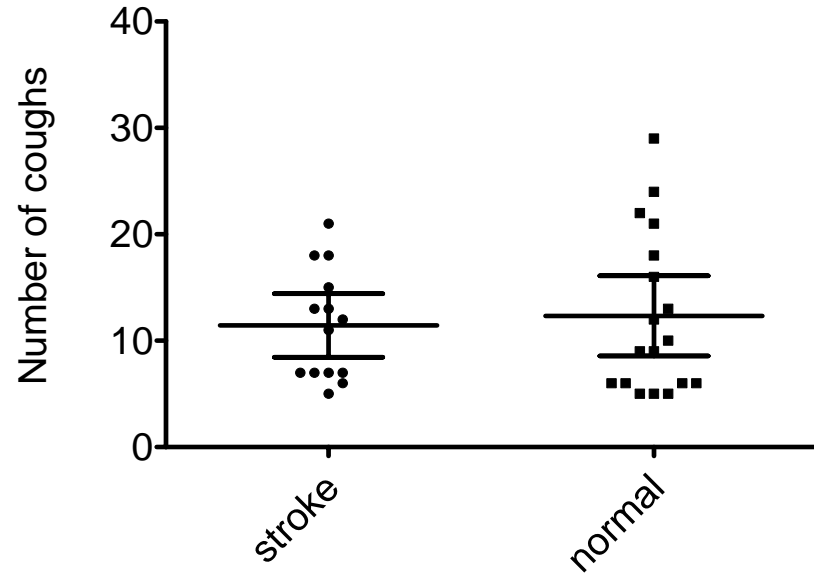


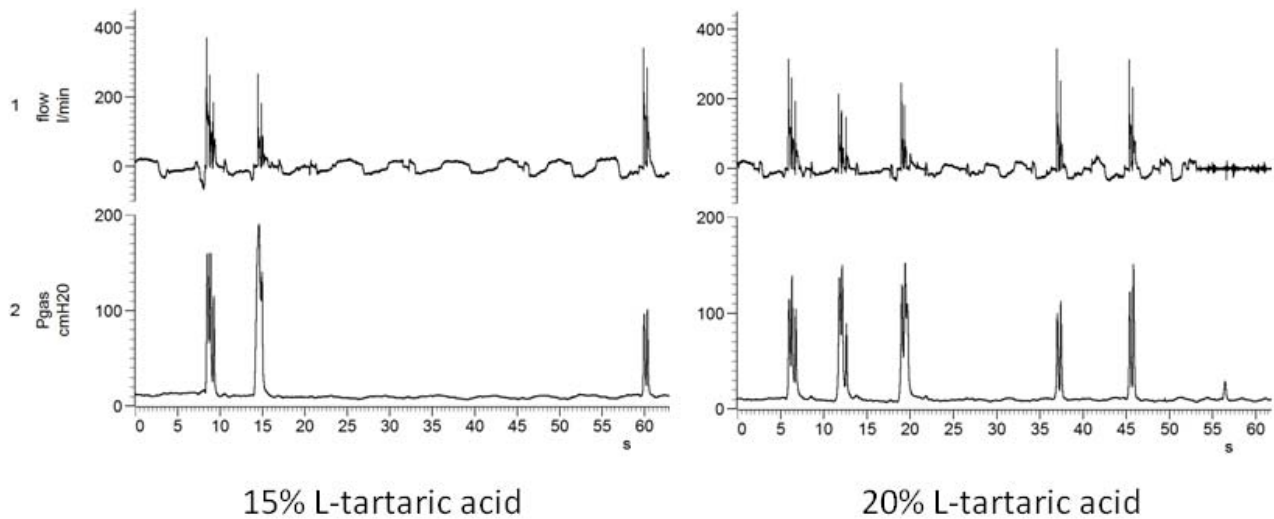
Figure S4: Cough Intensity and Increasing Stimulus Intensity

In our early studies we continued to give participants higher concentrations of TA after they had reached 5 coughs. All four images in the panel below show tartaric acid stimuli causing five or more cough spikes on the flow and gastric pressure traces. The cough flow rate does not increase when the concentration of L-tartaric acid increases from 15% to 20% (Control Subject, Figure S4A) or from 10% to 20% (Stroke Patient, Figure S4B).

Figure S4

Raw data acquired during reflex cough testing in a control subject (top panel, Figure S3A) and a stroke patient (bottom panel, Figure S3B).

Figure S4A Control Subject Reflex Coughs



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Figure S4B Stroke Patient Reflex Coughs

