Supplemental Material S4. Respiratory mechanisms: empirical studies.

Author(s), year	Label	Criteria for MTD-1 diagnosis	Study groups	Assessment measures relevant to the respiratory category	Main results for the respiratory category
Belsky et al., 2021	Primary muscle tension dysphonia	No secondary voice disorder	*(Retrospective)* G1: 85 patients with MTD-1 G2: 85 vocally healthy (historical) controls	-Mean airflow -Number of breaths -Inspiratory/expiratory airflow durations -Inspiratory/expiratory airflow volumes -Phonation time -Duration of reading -CPP, SD -Low to high ratio, SD -CPP F0, SD -CSID -SPL	The MTD-1 group had a significantly longer reading duration than the control group ($p < .0001$), with longer inspiratory ($p < .0009$) and expiratory airflow durations ($p < .0001$). Mean SPL was lower in the MTD group ($p = .0016$), but other acoustic measures did not differ.
Cryns et al., 2021	Functional dysphonia	Score on the SVHI of 50 of higher No lesions or other pathological changes of the larynx	G1a: 15 healthy females G2a: subgroup of 6 healthy females with the best SVHI scores G2b: 5 females with functional dysphonia	-Muscle thickness and change in thickness of the transverse abdominal (TAM) and internal oblique (IOM) muscles -Recruitment of the TAM (abdominal hollowing test) -Breathing behavior (abdominal, thoracic or mixed) -Secondary motor activities	Participants in G2b had a thinner TAM at rest ($p = .017$) and a greater increase in thickness during the crescendo task in mm and percent change ($p = .03$) when compared to G2a. They had a greater increase in TAM thickness during the prolonged exhalation task in mm and percent change when compared to G1a ($p = .025$; $p = .005$, respectively) and G2a ($p = .017$; $p = .009$, respectively). No difference was observed for the IOM. Regarding the abdominal hollowing test, a lower number of participants in G2b successfully performed a pressure increase of 15mmHg when compared to those in G1a and G2a ($p = .035$, $p = .022$, respectively).

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					In G1a and G2b, abdominal breathing was predominant during all tasks. In G2b, thoracic and mixed breathing predominated, and secondary activity was present (particularly in the cervical spine, the lumbar spine, and the left arm and shoulder).
Gillespie et al., 2013	Primary muscle tension dysphonia/ aphonia	Patient-perceived voice problem; no structural or neurologic abnormality	*(Retrospective)* G1: 90 women with MTD-1 G2 (normative sample): 45 healthy controls	-Estimated subglottal pressure (est-P_{sub}) -Average phonatory airflow	Estimated subglottal pressure and average phonatory airflow were significantly higher in the patient group when compared to healthy speakers ($p < .001$; $p < .003$, respectively). Five combinations of est-P_{sub} and average airflow were identified: 1) normal est-P_{sub} – normal airflow 2) high est-P_{sub} – normal airflow 3) normal est-P_{sub} – high airflow 4) normal est-P_{sub} – low airflow 5) high est-P_{sub} – high airflow
Gilman et al., 2019	Muscle tension dysphonia	Not specified	40 patients with voice disorders *Subgroups of patients with:* G1: benign lesions (n = 9) G2: vocal fold paralysis/paresis (n = 9) G3: MTD (n = 8) G4: edema or laryngitis (n = 11)	-Mean airflow -Expiratory volume -Inspiratory volume	There was no significant difference in mean airflow, inspiratory volume, or expiratory volume between diagnosis groups during running speech. Examination of individual data revealed different respiratory patterns, such as breath holding.

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			G5: chronic cough (n = 3)		
Lowell et al., 2008	"Voice disorder in the absence of laryngeal pathology"	Vocal symptoms (effort/work/ tiredness/weak voice) No vocal fold pathology	G1: 9 teachers with voice disorders G2: 9 teachers without voice disorders	-Lung volume initiation and termination relative to resting expiratory level (LVI-R, LVT-R) -Lung volume expenditure -%VC/syllable -Closed quotient (CQ) -Contact index (CI) -Effort ratings on a 100-mm VAS -SPL	LVI-R was smaller in the mock teaching and loud mock teaching task in G1 when compared to G2 (significant between-groups differences, p = .025 and p < .001, respectively). No between-group differences or interaction effects were found for CQ and CI from electroglottography. Changes in CI were found within breath groups during speech, indicative of a greater asymmetry of the contact-closing and opening phases as lung volume decreased (p < .001). Effort ratings were greater in the voice disorder group, but no between-group significant difference was found (p = .070). SPL was significantly lower in G1 when compared to G2 (p = .040).
Lu et al., 2021	Functional dysphonia	Not specified	G1: 22 healthy controls G2: 47 patients with functional dysphonia	-Nasal airflow -Breathing kinematics (chest vs abdomen)	At rest, breathing times were shorter in G2 when compared to G1 (p < .05), and chest amplitude during inhalation was greater (p < .05) while abdomen amplitude was lower (p < .05). Chest breathing was also the predominant pattern during the vowel task, and a breath-holding phenomenon was reported (only in G2).

Note. CPP = cepstral peak prominence; SD = standard deviation; CSID = cepstral spectral index of dysphonia; SPL = sound pressure level; SVHI = Singing Voice Handicap Index; TAM = transverse abdominal muscles; IOM = internal oblique muscles; est-P_{sub} = estimated subglottal pressure; LVI-R = lung volume initiation relative to resting expiratory level; LVT-R = lung volume termination relative to resting expiratory level; VC = vital capacity; VAS = visual analogue scale; CQ = closed quotient; CI = contact index.