

The Voice



THE VOICE
FOUNDATION

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WITH AN
AUDIBLE

GASP



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THE VOICE OF THE EDITOR WITH AN AUDIBLE GASP

Kim Steinhauer, Ph.D.

Did I hear an Audible Gasp as you opened this issue exploring inhalation phonation? Our multi-disciplinary experts from across the globe, Kate Emerich, Elisabetta Rosa, and Scott Sussman, don't always agree but graciously offer their clinical, pedagogic, and scientific perspectives on vocalizing on an inhale. This naturally occurring sound has many names, including Inhalation Phonation, Ingressive Airflow, Inhalatory Phonation, Inspiratory Maneuver, and Reverse Phonation, to name a few. The actor Jack Black with his band Tenacious D riffs on "inward singing," and I carefully coach my vocalists with a version I call, *The Singhale*. (My shortcut for "sing on an inhale") Also, learn from the collective experience of our authors and put the theory into

practice by clicking their video links in ***Tools for Your Voice Box*** (pg 7).

I hope you are intrigued, no, **inspired** by this issue providing a breath of fresh air into the world of phonation - **Inhalation Phonation**, that is!



Kimberly Steinhauer, PhD
President, Estill Voice International
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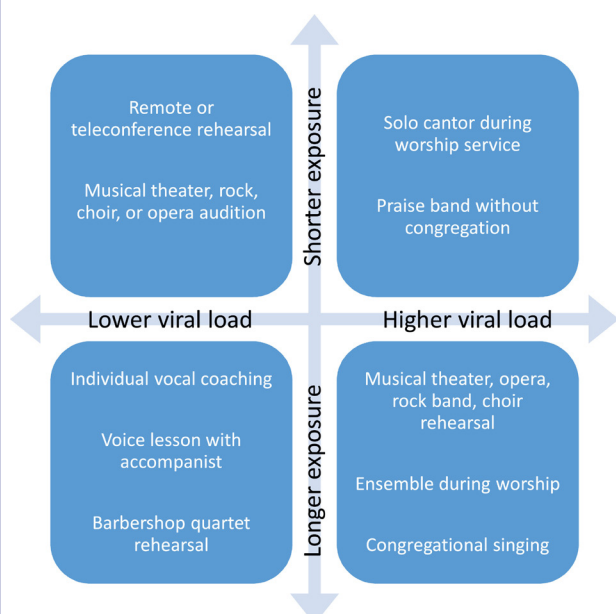
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Safer Singing During the SARS-CoV-2 Pandemic: What We Know and What We Don't



Matthew R. Naunheim, Jonathan Bock,
Philip A. Doucette, Matthew Hoch, Ian Howell,
Michael M. Johns, Aaron M. Johnson,
Priya Krishna, David Meyer, Claudio F. Milstein,
John Nix, Michael J. Pitman,
Trineice Robinson-Martin, Adam D. Rubin,
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JOURNAL OF VOICE

Full length article | Volume 35, ISSUE 5,
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THE VOICE OF THE SINGING TEACHER

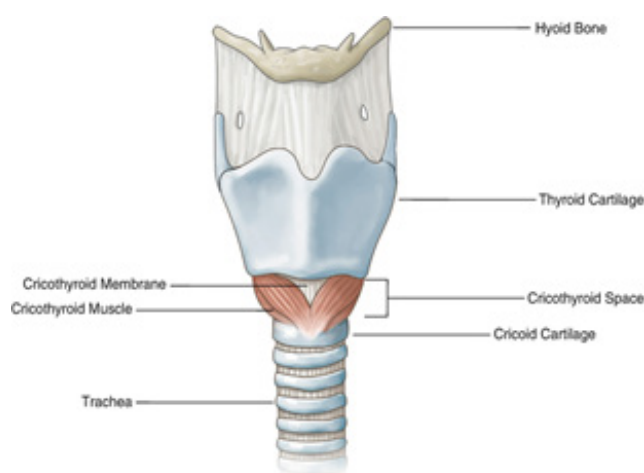
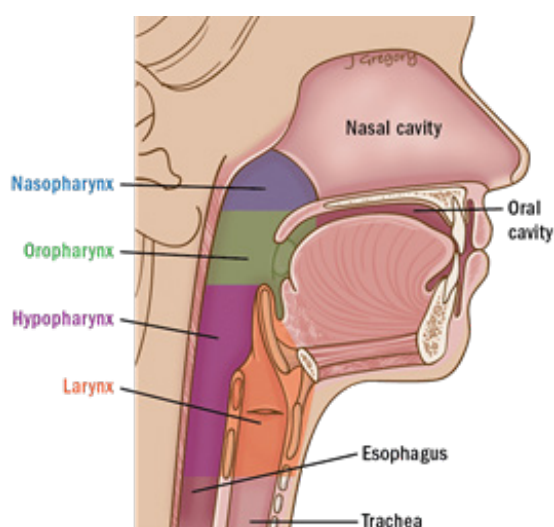
Using Inhalation Phonation WITH THE SINGER

by Kate Emerich, BM, MS, CCC-SLP

Singers with hyperfunctional muscular patterns often have difficulty modifying those behaviors because they have been practiced and learned. A clear benefit of using Inhalation Phonation (IP) with singers with Muscle Tension Dysphonia (MTD) is that it provides a bio-mechanical “re-set” of the musculature. The physiologic changes reported in the literature associated with IP include the release of jaw and tongue tension, amelioration of pressed phonation, a natural lowering of the larynx, and subsequent widening of the hypopharynx. These “re-sets” improve resonance and laryngeal stability via increased flow phonation, improved vibratory characteristics of the vocal folds (observed during videolaryngostroboscopy), a stretching of the vocal folds through the contracted cricothyroid muscles, the optimizing of fundamental frequency, and a

sympiotic training tool for coordinating phonation and respiration/breath management.

As with any new pedagogic concept, it is always best to begin with training IP in isolation. Many singers will be able to produce IP without difficulty, but some will find it counterintuitive and challenging. Producing IP in an organic form may be the easiest training tool (e.g., sneeze, laugh, gasp). Once the IP is established, practice the IP in the speaking voice and gradually transition into inhalation/exhalation hum. The IP hum is helpful in decreasing the drying effect that can occur with the production of IP. The singer will be able to become more sophisticated in its production over time and a natural hierarchy of IP exercises will emerge. Because the benefits of IP have been described primarily when immediately followed by exhalation/phonation, we encourage



“Ultimately, through repetitive IP practice, motor learning of the IP muscular posture and flow-based phonation takes place and the hyperfunctional muscle patterns are replaced with optimal physiology and function. ”

this process during training and practice. Also, we cue a relaxed inhalation with the impetus in the respiratory musculature (contraction of inspiratory diaphragm, expanded ribs, relaxation of abdominal musculature and downward movement of the pelvic floor).

Suggested Hierarchy for Inhalation Phonation (IP)

- Start by performing an IP organically (as in a gentle gasp, an inhalation following a laugh, etc.) with a cue to initiate the inhalation with rib expansion and a subsequent low breath. This avoids a high, clavicular breath and associated head and neck tension. The IP serves as the inhalation for the duration of the exercises. The exhalation part of the exercise immediately follows the IP without a pause; the vocal folds do not fully abduct until after exercise is complete. Encourage the singer to notice the jaw, tongue, larynx, pharynx, and velum during IP and Normal Phonation (NP). IP is always produced at a comfortable frequency (Hz).
- Progress to an IP hum followed immediately by an exhaled /m/ or hum. Repeat 5 times, slowly transitioning from IP-hum to NP-hum.
- Progress to an IP hum followed by an exhaled hum into /a/ (speaking voice). Work through other vowels /e/, /i/, /o/, and /u/, slowly transitioning from IP to phonation.
- Progress to an IP hum followed by an exhaled hum into a pitch glide (speaking voice) into the vowels.
- Progress to an IP hum followed immediately by a sustained hum (singing voice) at a comfortable pitch. Move into a descending 3-note scale on

a closed vowel (/i/ or /u/). Transition by half-steps through a comfortable vocal range.

- Progress to an IP sustained hum followed immediately by singing descending 5-note scale on a closed vowel. Transition by half-steps through a comfortable vocal range.
- Progress to an IP hum followed immediately by singing a descending arpeggio (8–5–3–1) on a favorite vowel. Transition by half-steps through a comfortable vocal range.
- Progress to an IP hum slide (1–3) followed immediately by a 3–1 slide. Transition by half-steps through a comfortable vocal range.
- Progress to IP words or short phrases, e.g., IP “Hello” (1-3) NP “Hello” (3-1), or IP “How are you?” (5-5-1) into NP “How are you”.
- Progress to repertoire by using an IP before singing each phrase.
- Progress to using IP on the first word of each phrase of a song followed by NP; simply just singing of the remainder of the phrase.
- Progress to singing a phrase in IP followed immediately by NP for the remainder of the phrase.
- Progress to using the feel of IP as a pre-phonatory gesture but without sound prior to phonation.

As with any singing technique, proper understanding of vocal production is essential. IP can be a creative tool for a singer with MTD, whether the patterns of tension are mild, moderate, or severe. Ultimately, through repetitive IP practice, motor learning of the IP muscular posture and flow-based phonation takes place and the hyperfunctional

muscle patterns are replaced with optimal physiology and function. The singer gains improved proprioception of efficient phonation, flow, and phonatory control of the coordinating support mechanisms with mindful practice of IP, and inhalation phonation is eventually replaced with mindful inhalation (without sound) with the positive benefits of IP.



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TOOLS FOR YOUR VOICE BOX

Kate Emerich & Elisabetta Rosa...

share their voices and Inhalation Phonation Protocols in the following links. Enjoy and experiment with their tips for vocal balance via inhalation phonation exercises.

Both Kate and Elisabetta offer many gems based on their vast experience throughout the videos and exemplify the breadth, depth, and creativity within our Voice Foundation community.

[Inhalation Task Hierarchy](#), Kate Emerich



[Inspiratory Vocal Fry](#), Elisabetta Rosa

Perceptual Voice Qualities Database

We are happy to announce the Perceptual Voice Qualities Database (PVQD) 296 Audio Files (in .wav format) of the CAPE-V vowels and sentences.

Research done by Patrick R. Walden, Ph.D., CCC-SLP, St. John's University

This database was created through generous funding from
The Voice Foundation's Advancing Scientific Voice Research Grant.

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THE VOICE OF THE SPEECH-LANGUAGE PATHOLOGIST



Inhalation Phonation

Clinical Views - Clinical Views - Clinical Views

by Scott Sussman, MS, CCC-SLP

Inhalation Phonation (IP) is one of many tools in my therapy arsenal; yet, this exercise is not typically my first choice. My patient's initial attempts often are constricted with a high larynx, accompanied by pulling the shoulders and chest high, and causing them discomfort and a sense of choking. I've often heard, "I don't like that," or "I don't want to do that again," especially when a Semi-Occluded Vocal Tract task or sob quality felt com-

fortable and resulted in an immediate salient change. However, IP has been an invaluable tool for a patient who is not responding to any of the more popular approaches. I saw a severe Muscle Tension Dysphonia case last year where my patient could only use a gently inhaled voiced gasp to find her spoken voice on a natural modal pitch without severe strain, rather than on the high, breathy, and severely strained voice which had become her baseline. She often used the voiced inhale as a vocal reset while speaking, which we

“We debated whether the “happy surprise” gasp was truly an IP technique, and following our discussion, we agreed that perhaps we use it as a facilitator more than we had realized.”

eventually phased out to use as a rescue when needed.

A discussion with my SLP colleagues revealed that they also use IP after exhausting other techniques. One SLP felt that it sometimes reinforced a maladaptive hyperfunction which may be harder to break in a session, though the technique has helped her drop a high larynx when performed properly. She will also try an ingressive vocal fry as a facilitator. Another colleague has observed IP to typically trigger coughing, especially in our hypersensitive patients, and finds it uncomfortable to repeatedly demonstrate it herself. She does use an ingressive gasp as a training gesture but focuses the patient on opening the oropharynx rather than phonating on the inhale, and rarely cues them to make sound. They prefer an inhaled breath without phonation as an effective facilitator. We debated whether the “happy surprise” gasp was truly an IP technique, and following our discussion, we agreed that perhaps we use it as a facilitator more than we had realized.

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An inspiratory maneuver is used regularly in our clinic during videostroboscopy, and the director of our clinic, Dr. Lucian Sulica, published on its use in 2005. The ingressive airflow on partially abducted vocal folds draws the tissue to the midline, allowing the examiner to sometimes see through the superficial lamina propria when it is moved from the opaque deeper tissue. This technique can help clarify the nature of a lesion and its attachment, as well as areas of mucosal tethering. Dr. Sulica does point out that this inspiratory maneuver is not the same as the therapeutic technique of inspiratory phonation described in some of the literature to release hyperfunction.

As with any technique in my therapy tool belt, I use my clinical knowledge and experience to pair the appropriate treatment exercise with the appropriate patient. Although IP is not at the top of my list, the task has facilitated improved views of the vocal folds during examination and a path to balanced phonation for some of our patients.



References:

Sulica, L., Behrman, A., & Roark, R. (2005). The Inspiratory Maneuver: A Simple Method to Assess the Superficial Lamina Propria During Endoscopy. *Journal of Voice*, 19(3), 481–484. <https://doi.org/10.1016/j.jvoice.2004.08.010>

THE VOICE OF THE RESEARCHER

Inspiratory Vocal Fry

by *Elisabetta Rosa, SLP*

When I first stumbled across Inspiratory Vocal Fry (IVF) it was an epiphany! At least 15 years ago, I laughed out loud and then inhaled the air noisily as if my laugh was continuous. I never noticed how much that reverse sound in my typical laugh was similar to “normal” vocal fry.

I had just earned my degree in Speech and Language Pathology. At the University, preparing my exam in Linguistics, I learned that inhalatory phonation can be found in some languages. I already knew that Expiratory Vocal Fry (EVF) could be used as a means to warm-up the voice; all the same, I was also aware of the risk of producing a “creaky” sound with some degree of constriction--not exactly an ideal way to prepare the voice safely. After I found that strong sensation of freedom in the throat during the inspiratory sound, I began using IVF in my personal routine for warming up the voice. One day I spoke to my singing mentor, Elisa Turla, about this *discovery*. She showed great interest and told me that some metal singers use inhalatory sounds to create effects similar to growl or scream with great efficiency and low or no vocal strain. This news encouraged me to use IVF with my singing students too. Professionals in particular were enthusiastic about the benefits of this exercise

before and after a performance, and even during the show itself or in the break, reporting the same “restoring” effect on the voice that I had experienced myself.

Years went by and I collected a great amount of anecdotal positive outcomes, but I was still missing the scientific rationale that could allow me to use

“I know that I am no unbiased observer, but I think that IVF could possibly be the “perfect” exercise: safe, multipurpose, quick, and easy.”

IVF--even with my patients with voice issues. One day I spoke about all of this to Dr. Nico Paolillo, ENT, and voice expert; he enthusiastically agreed that an in-depth scientific analysis was worthwhile. We collected two young SLPs, Matteo Scalabrin and Luca Carrozza, and Dr. Maurizio Osio, Neurophysiologist, for

our team and began our pilot study on IVF in 2015. In nearly three years we made many interesting observations, useful both in voice pedagogy and in clinic. Comparing IVF to EVF we could assess:

- **crucial reduction of false vocal fold adduction**
- **lower activation of the pharyngeal walls**
- **increased elastic stretching of the vocal folds, due to the activation of cricothyroid (CT) muscles**
- **more focused “massage” effect on the mucosa, due to a prevalent activation of medial vs lateral portion of thyroarytenoid (TA) muscles**
- **tendency to lower the larynx**
- **greater synergy between laryngeal adductor and abductor muscles**

To sum it up, IVF clearly emerged as far less hyperkinetic than EVF and much more suitable both for warming up the voice (thanks to the greater activation of CT and medial TA) and to cool it down (thanks to the “massage” effect on the mucosa), without the risk of false vocal fold constriction. We also found it very useful to reduce hyperfunctional vocal behaviors in singers and actors, mostly in beginners.

Based on the evidence we found it seemed reasonable that IVF may not be harmful, so we include it in voice therapy protocols, for instance in case of dysfunctional, organic or psychogenic dysphonia, paresis, post-surgical treatment, and artistic voice rehabilitation. I suggest my clients perform IVF for about one minute: first, they exhale (or laugh, if they prefer), then inhale through the mouth with an /a/, trying to create a creaky sound or a kind of deep burp, for as long as they can. Then, repeat on the other vowels. In one minute approximately ten repetitions are usually feasible. I know that I am no unbiased observer, but I think that IVF could possibly be the “perfect” exercise: safe, multipurpose, quick, and easy. The only possible side effect is that inhalation through the mouth can dehydrate the vocal folds and pharyngeal mucosa. To overcome this, I suggest my clients to wear a wet gauze inside their face mask (we always have one with us, right?), so in the meanwhile they are also hydrating their

mucosa, a wonder for the voice! One other strategy is to produce IVF inhaling through the nose so that the air is naturally warmed and humidified: the laryngeal set-up is the same as in the oral version. This nasal variation has another immense advantage: the production of the exercise is invisible and almost inaudible. So, you can perform our Inspiratory Vocal Fry anywhere without being spotted, even in a close-up or being in the center of the stage!

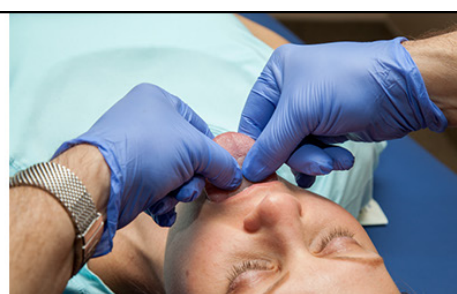


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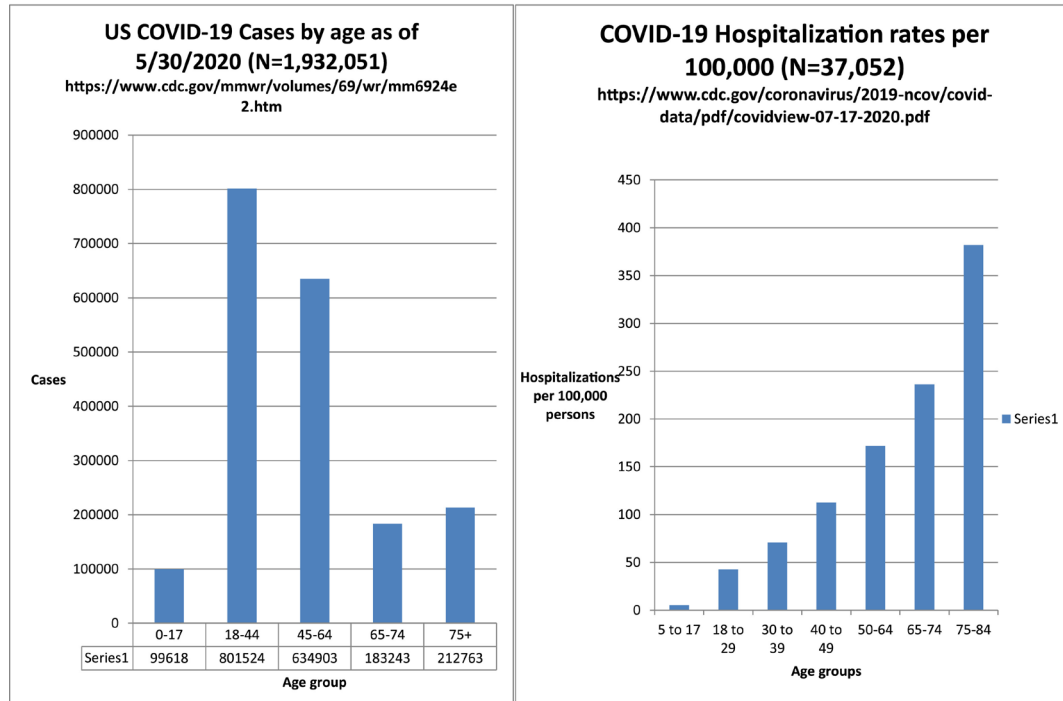


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Comparing Case Rates versus Hospitalization Rates by Age



Lynn Holding, Thomas L. Carroll, John Nix, Michael M. Johns, Wendy D. LeBorgne, David Meyer

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