EXCELLENCE IN SINGING

multilevel learning and multilevel teaching

VOLUME 2: Mastering the fundamentals

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- The muscles and tissues that the body recruits for phonation must make incredibly small changes to make a difference in the sound. For instance, to change the timbre of her voice at A5, the body must shorten or lengthen the closing phase of the vocal folds as they open and close 880 times per second. Consequently, your teaching methods must aim for subtleties that can be detected only by the sense of hearing or general kinesthetic sensations.
- The intrinsic muscles are tightly packed with nerves, which makes them highly responsive to your student's thoughts and emotions. She just *thinks* a pitch and those muscles zip into one formation; she thinks another pitch and they zip into another formation.
- The intrinsic muscles must make precise adjustments. For a quick three-note ornamental turn, for example, her cricothyroid muscles—a group of the phonation muscles—contract with, say, fifty percent of their strength, then relax to twenty-nine percent, then contract back up to sixty-two percent—all in a split second.

But we humans come into the world already capable of shaping the pulses in many ways. For instance, cooing, crying, and giggling demonstrate the great variation in the pulses that infants create. In teaching singing, you merely expand and refine these natural capabilities.

Focus on Flow Phonation

For ease, freedom, and flexibility in singing, you want to focus your student's attention on *flow phonation.* Flow phonation is balanced phonation: your student achieves flow phonation when she

balances the contraction patterns of her intrinsic muscles with her varying breath pressures. The resulting tone sounds free and easy, with one sound moving easily into the next, and your student experiences a sensation of ease and flow.

At each change in pitch, timbre, or dynamic level, your student's breath and intrinsic muscles move into and out of different combinations. Your student's challenge is to coordinate those motions so that she creates a general sense of flow phonation.

You train the intrinsic muscles and their complex operation by having your student focus on flow phonation. In this way, you train a singer in the same way you train a snow skier. As the skier glides over moguls and slope changes, his legs spring up and down like shock absorbers. His body leans, straightens, hunches. His knees point this way and that. His arms pull in and out. During all of this dynamic motion, he learns to focus his attention on the upcoming terrain and his sense of balance, allowing his whole body to respond unconsciously and freely.

A mountain is to a skier what a vocal line is to a singer: both the skier and the singer need to maintain balance while moving across ever-changing conditions.

Similarly, as your singer sings her vocal line, her intrinsic muscles lengthen, shorten, thin, thicken, tighten, and loosen her vocal folds, and her breathing muscles increase and decrease the breath pressure. (See the heading "Optimizing Breathing for Singing," in v. 1, ch. 4.) During all of this dynamic motion, your student learns to focus on the upcoming music with a sense of flow phonation, allowing her intrinsic muscles to respond unconsciously and freely.

Phonation Continuum

Your student can learn to identify the sounds and general kinesthetic sensations of flow phonation. They fall in the middle of a continuum that has *breathy phonation* at one extreme and *pressed phonation* at the other.

Table 1: Phonation Continuum

<——too loose	balanced	too tight——>
breathy phonation	flow phonation	pressed phonation

Breathy phonation

We can hear breathy phonation easily. We hear air leaking through the vocal folds; when it's extreme, we hear an unphonated whisper. We produce breathy phonation by singing with our vocal folds too loose or too far apart.

Pressed phonation

We hear pressed phonation as a tight, squeezed, or harsh tone quality. We produce pressed phonation by singing with the vocal folds closed too tightly. When pressed phonation is extreme, we hear only a grunt or a growl.

Flow phonation

If your student sings from breathy to pressed phonation, she will begin to sing with flow phonation somewhere in the middle. She won't feel her breath "evaporate" or "disappear" through too-loose vocal folds or feel as though she must force her breath through too-tight vocal folds. Instead, she will feel her tone sail out "on the breath," as though her breath is connected to her tone.

Most teachers call the sound of this middle-ground phonation the "free tone." The free tone sounds nimble and it can move freely to any pitch, timbre, or dynamic level. Some teachers ask for this sensation with phrases such as "let the tone ride on the breath."

When your student sings with flow phonation, she should feel the tone as easy and flexible, as though nothing is happening in her throat, and she should feel the breath as though it connects to the sensations of resonance.

Indirect Control of Flow Phonation

Your student can easily experience flow phonation while singing a simple tone: she has merely to sing from breathy to pressed phonation and identify it along the way. But maintaining flow phonation across the ever-changing landscape of music is another matter.

Because she cannot control her intrinsic muscles consciously, she needs to shift her attention away from her throat and toward her body, breath, and resonance—the other functions of the vocal system—and, after making a change in any of those functions, allow her intrinsic muscles to respond. When you hear a pressed or breathy tone, there is a quick saying you can use: "Check body, breath, and vowel."

Body

If your student's body scrunches the muscles around her larynx, solve the resulting phonation problem by having her shift her body. In many students, phenomenal changes in phonation can occur by asking them to tilt their head and lengthen their spine

just slightly. This simple step can solve poor intonation and pressed phonation. (See the heading, "Optimizing the Body To Support Singing," in v. 1, ch. 4.)

For instance, if your student's posture scrunches her vocal instrument while she is singing a new pitch, she will find it difficult, if not impossible, to manage flow phonation. You can help her by having her change her posture, tension, or movement patterns and allow her intrinsic muscles to respond freely and unconsciously.

Breath

A simple change in pitch demands complicated changes in the muscles of phonation. For instance, for your student to sing a low pitch at the same dynamic level as a higher one, her intrinsic muscles must loosen her vocal folds. She must also ease up on her breath—otherwise, her breath will overpower her looser muscles on the lower pitch, producing breathy phonation. (See the heading, "Optimizing Breathing for Singing," in v. 1, ch. 4.)

On each new pitch, your student must change her breath to some degree along with her vocal folds. But if your student overshoots with her breath, she can throw the pitch off. According to Johan Sundberg, a voice scientist,

> An increase in subglottic pressure [breath pressure] leads to a small increase in phonation frequency [pitch], if everything else is kept constant.[1]

If your student undershoots with her breath, she may create an unwanted change in the dynamic level. Ingo Titze, another voice scientist, observes,

> As the pitch goes up, the vocal folds become stiffer and require more lung pressure [breath pressure] to maintain the same amplitude of vibration [the same dynamic level].[2]

In other words, both the vocal folds *and* the breath must change to arrive at the new sound in flow phonation.

For example, if your student doesn't have enough breath, she might squeeze her vocal folds to try to stay on pitch (something like squeezing a water hose to get a trickle to squirt farther). If you help her "get her breath going," she won't need to squeeze her vocal folds. She can release the tension and still maintain pitch, free to sing with flow phonation. You can help your student make these adjustments by focusing her attention on her breath, allowing the intrinsic muscles to respond freely.

Resonance

From the vocal folds to the lips, the air column vibrates at different frequencies depending on its overall shape. These frequencies are called *resonances*. (See the headings "Resonance," in v. 1, ch. 4, and "Source-Filter Theory," in v. 1, ch. 6.)

If strong enough, the resonances in the vocal tract either help or hinder the phonation. The resonances could tip the vocal folds out of balance, pushing them toward either breathy or pressed phonation. At the new pitch, the resonances may need to change along with the vocal folds to maintain flow phonation.

If your student's resonances aren't "tuned"—if the air column above the vocal folds is not vibrating in sync with the opening and closing of the vocal folds—she might overcompensate to try to overcome a muffled tone quality, creating a problem in phonation. If you help her tune her vocal tract, she'll be able to liberate the sound, releasing the extra effort in her vocal folds and freeing them to become balanced with her breath for flow phonation. You

can help your student tune her vocal tract by having her change the vowel, the tone quality, or the kinesthetic sensations in her head.

Changing the vocal tract can also help remove unwanted tension in the vocal folds. (See the heading "Optimizing Phonation for Singing," in v. 1, ch. 4.)

Teaching and Learning Phonation

Although a student balances her phonation by modifying her body, breath, and resonance, she can still develop flexibility in phonation by following a few key guidelines:

- Free the muscles in and around the larynx. A tight throat crimps the intrinsic muscles' ability to configure the vocal folds. Address this problem by focusing your student's attention on relaxing her throat and keeping her larynx in a comfortable low position. (See the exercises under "Relaxing the Throat," on page 126.)
- Begin, sustain, and end the tone with flow phonation. An off-balance beginning tends to keep the rest of the phrase off balance. An unsynchronized breath or resonance stifles a sustained tone. And breath dying out or resonance sagging before the end of the phrase throws the system out of balance. Address these problems by focusing your student's attention on the onset of her tone and on her breath and resonance to sustain and end phonation. (See the exercises under "Beginning, Sustaining, and Releasing the Tone," on page 132.)
- Use flow phonation throughout the range. Various locations in the vocal range tend to disrupt balanced phonation. Address this problem by focusing your student's attention on exploring her

light high voice and her heavy low voice across different pitch areas. (See the heading, "Events and Registers," in v. 3, ch. 11, and the exercises under "Smoothing Transitions through the Event Areas," in v. 3, ch. 12.)

- Develop a clear mental image of the tone. Because the intrinsic muscles respond to the mental concept of pitch, a poor concept leads to poor responses in the intrinsic muscles and, consequently, to poor phonation. Address this problem by having your student develop a clear mental image of pitch and tone quality. (See the exercise "To Hear the Pitch in Advance," on page 170.)

Singing with a Soft, Relaxed Throat

While teaching most aspects of singing, you typically guide your student to particular sensations and have her explore them, remember them, and associate them with your teaching objective. However, when you teach phonation, you want your student to feel the *absence* of any specific sensation in her throat for changes in pitch, timbre, or dynamic level. Even though her vocal folds are stretching, bending, opening, and closing hundreds of times a second, she should be aware only of an open, relaxed, "soft" throat to sing with flow phonation. In fact, some teachers don't want to mention phonation at all. By focusing on the vocal folds, your student might try to create sensations—usually by tensing a set of muscles; this only interferes with flow phonation.

The old master teachers used to say that what you're really training is not the vocal folds but a soft throat. The sensations of a soft throat are accompanied either by sensations of spaciousness from the throat through the hard and soft palates, all the way up behind the eyes, or by sensations at the bridge of the nose or the front of