

Phonation into a Straw as a Voice Building Exercise



Ingo R. Titze

My good friend Anne-Maria Laukkanen from Tampere, Finland inspired me to write this column. She has been researching a scientific explanation of the clinical utility of phonating into a tube to improve vocal efficiency. In Finland, voice clinicians use glass or metal tubes, of various lengths and diameters, to facilitate “ease” of phonation. The basic intent is to alter the acoustic load (the vocal tract impedance), which is normally very low in comparison to the glottal impedance in a vowel.

For a considerable time period, I didn’t have access to the bone fide tubes, so I picked up various straws in a cafeteria, ranging from the very small diameter coffee-stirring straw to a large one used for sucking thick milkshakes. I began to try them during my vocal warm-ups. At first, it was difficult to maintain a smoothness of production over a wide pitch range, but once I accepted the fact

that the sound would be small, even with a large lung pressure, the vocal folds began to respond to this strange load. It felt similar to a lip trill, but without the extra sound created at the lips.

I have written about the efficacy of the lip trill in a previous issue (Titze, 1996). Further discussion of this exercise was presented by John Nix (1999). In the past, I have viewed it mainly as a warm-up exercise for the respiratory system. Large lung pressures can be used with only small vibrations resulting on the upper medial portion of the vocal fold. Because there is an overall large positive pressure throughout the vocal tract with this semi-occlusion at the lips, the vocal folds are kept apart, vibrating only with a small amplitude in a horizontal plane. This is healthy for the tissues while the abdominal muscles get a good workout.

Phonating into a small-diameter straw accomplishes the same thing. It may have a couple of minor advantages in that the sound of the vocal folds can be monitored better (it is not masked by the lip buzz) and, for some people, it eliminates the difficulty of training the lips to be floppy enough to vibrate. The disadvantage, of course, is that one needs to carry a bunch of straws in one’s pocket. For singers who travel a lot, both types of warm-ups are useful because they can be done in hotel rooms and in semi-noisy places without drawing excessive attention to oneself.

But what about other dimensions of the straws or tubes? If the objective is merely to create a flow resistance roughly comparable to that of the glottis in phonation, a diameter of roughly 2 to 3 mm works well. The length is not so important. Conrad (1985) has shown that a downstream resistance in a soft-walled flow channel can create an upstream oscillation (e.g., at the vocal folds). Thus, the tube resistance may actually help facilitate vocal fold vibration, which is an extra bonus to the respiratory warm-up mentioned above.

Phonating into a straw simulates the semi-occluded vocal tract configuration we often encounter in voiced consonants. There are singers who hate consonants and there are singers who love consonants. Those who love them have learned how to make downstream obstructions (semi-occlusions) work to their advantage. They launch the vowel with the consonant. This was demonstrated at a recent New York Singing Teachers Association seminar by David Adams, who (as many singing teachers do) used the voiced consonants /m/, /n/, /z/, /r/, /v/ as launching pads for the vowels to follow, making sure that the correct pitch is already associated with the consonant. Singers who have not discovered the efficacy of playing the muted trumpet (if you buy into the analogy) view consonants as necessary evils, obstacles to sing around, or a minefield to tiptoe through.

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I don't believe that use of a straw is necessarily any better than use of a voiced consonant. But sometimes it helps to detach oneself from the environment that may have contributed to a problem which, for some singers could be less than ideal fluency between articulation and phonation in speech. Once the feeling is gained that phonating into a narrow vocal tract is easy, one can return to the consonants with greater confidence.

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