

*A Vocologist's Guide:*

# *Voice Therapy & Training*

Compiled by the  
National Center for Voice and Speech  
for the National Institute on Deafness and Other  
Communication Disorders

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# Introduction

This booklet was written for two audiences. It provides a quick reference for practitioners who work with voice: speech-language pathologists, singing teachers and voice coaches. Collectively, these practitioners are called **vocologists**. Additionally, *A Vocologist's Guide: Voice Therapy and Training* is for individuals with voice problems who want to make educated choices about the treatment they receive.

Current approaches to voice management are presented in summarized formats. Seven clinical voice therapy techniques and four popular voice training techniques from the theatre realm are presented. These techniques are representative samplings of those commonly used in speech-language pathology and theatre, although others are available. Throughout this booklet, an attempt was made to use language easily understood by practitioners with varying backgrounds.

One of the primary goals of this booklet is to encourage clinicians to realize all of the beneficial approaches to voice management available to them. Also, a good grasp

of the underlying physiology allows the clinician to better understand how the treatment works. References are provided as a means to gain further information and, possibly, promote implementation of new techniques. Finally, presenting the spectrum of voice management techniques helps foster an interdisciplinary awareness of the ways voice habilitation is approached from different traditions.

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# Confidential Voice Therapy

## APPLICATION

Intended for patients with edema-based (traumatic) injuries such as vocal fold nodules and polyps.

## DEVELOPER

No single person originally developed this technique, which is used widely in speech pathology for treatment of nodules, polyps, and similar conditions. However, it was perhaps originally called "confidential voice therapy" by Dr. Janina Casper, who, together with her colleagues has also provided physiological descriptions of it.

## DESCRIPTION

The method involves speaking as quietly as possible, with a somewhat breathy quality, as if speaking confidentially at close range. A typical therapy hierarchy includes limited work at the single sound and word level, and a rapid progression to the conversational level. Most patients seem to handle this quite readily.

## MECHANISM

There is evidence that vocal fold adduction during phonation is limited with this method, leading to a limitation in vocal fold impact force. This, in turn, limits the potential for laryngeal trauma.

## EFFICACY STUDIES

Verdolini and colleagues examined confidential voice therapy and resonant voice therapy (description of technique follows) as two forms of treatment for vocal nodules. There was evidence of benefit from therapy in the sound of the voice, in phonation effort and in the appearance of the larynx for the combined therapy group as compared to the outcome for a control group. More importantly, patients who received confidential voice therapy and resonant voice therapy had about the same likelihood of benefitting from treatment, provided they actually used the therapy technique outside of the clinic (by their report).

## REFERENCES

- Colton, R., & Casper, J. (1990). Understanding voice problems: A physiological perspective for diagnosis and treatment. Baltimore, MD: Williams & Wilkins.
- Verdolini, K., Burke, M.K., Lessac, A., Glaze, L., & Caldwell, E. (in press). A preliminary study on two methods of treatment for laryngeal nodules. Journal of Voice.

# Resonant Voice Therapy

## APPLICATION

This method might be used for patients with many different types of voice disorders for which vocal fold adduction level is a critical issue. Examples are patients with nodules who may need a reduction in adduction and patients with paralysis, who may need an increase.

## DEVELOPERS

In theatre, Arthur Lessac has been one of the primary trainers to develop resonant voice techniques. Dr. Morton Cooper has applied his own version of resonant voice therapy to speech pathology, and Dr. Katherine Verdolini has developed Lessac's technique for application to disordered voice (speech pathology).

## DESCRIPTION

In all approaches to resonant voice training and therapy, the emphasis is on oral vibratory sensations during phonation, usually on the anterior palate. In the Lessac approach, the consonant "y" (and sometimes, other voiced consonants, especially nasal ones) is used to facilitate the target voicing in initial phases. In Cooper's approach, the response "um-hmm"--as if agreeing--is used as a facilitatory technique. Typical therapy hierarchies progress from simpler to more complex speech materials.



## MECHANISM

Research evidence suggests that vocal fold adduction during phonation is limited with this method, as compared to "pressed voice". Because of the limited adduction, there should be limited vocal fold impact force thus preventing and reversing traumatic injuries. At the same time, voice output is characteristically strong, such that an optimal trade-off is produced between voice output (high) and laryngeal trauma (low).

## EFFICACY STUDIES

Verdolini and colleagues examined resonant voice therapy and confidential voice therapy (previously described) as two forms of treatment for vocal nodules. Generally, there was evidence of a benefit from therapy in the sound of the voice, in phonatory effort and in the appearance of the larynx, as compared to the results for a control group. More importantly, patients who received confidential voice therapy and resonant voice therapy had about the same likelihood of benefitting from therapy, provided they actually used the therapy technique outside of the clinic (by their report).

## REFERENCES

Cooper, M. (1973). Modern techniques of vocal rehabilitation. Springfield, IL: Charles C. Thomas.

Lessac, A. (1967). The use and training of the human voice: A practical approach to voice and speech dynamics. New York: Drama Book Specialists. (2nd edition anticipated, 1994, Mayfield Press, Mountain View, CA).

Verdolini, K., Burke, M.K., Lessac, A., Glaze, L., & Caldwell, E. (in press). A preliminary study on two methods of treatment for laryngeal nodules. Journal of Voice.

Peterson, L., Verdolini, K., Barkmeier, J., & Hoffman, H. (1994). Comparison of aerodynamic and electroglottographic parameters in evaluating clinically relevant voice patterns. Annals of Otology, Rhinology and Laryngology, 103 (5), 335-346.

Verdolini, K. & Titze, I.R. (in press). From laboratory formulas to clinical formulation. American Journal of Speech-language Pathology.

# Flow Mode Therapy

## APPLICATION

This is an approach to optimal voicing in general, which may be used in normal voice training and for voice disorders. The specific disorder populations have not been formally specified, but the approach should be applicable to the same range of disorders as "resonant voice therapy."

## DEVELOPER

Dr. Johan Sundberg and his colleagues (Dr. Jan Gauffin, for one) have developed and proposed the technique.

## DESCRIPTION

Flow mode is described as the voicing mode produced by the largest amplitude vocal fold vibrations possible, with complete vocal fold closure during each cycle. Biofeedback is proposed in the training of flow mode, using inverse filtered airflow signals to reflect vocal fold vibrational patterns. Laryngeally, the method appears remarkably similar to, if not the same as, resonant voice production already discussed.

## MECHANISM

As for resonant voice, flow mode may limit vocal fold adduction compared to pathogenic phonation modes (pressed voice), while at the same time maximizing voice output.

## EFFICACY STUDIES

No formal studies have been conducted on the efficacy of flow mode, as such. However, if flow mode and resonant voice therapy are similar or even equivalent, as they appear to be, the study by Verdolini and colleagues on resonant voice therapy (previously cited in this booklet) may be relevant.

## REFERENCES

Gauffin, J., & Sundberg, J. (1989). Spectral correlates of glottal voice source waveform characteristics. Journal of Speech and Hearing Research, 32, 556-565.



# Accent Method

## APPLICATION

The technique is proposed for patients with a wide range of voice disorders.

## DEVELOPER

Svend Smith is credited with development of the technique.

## DESCRIPTION

The method is fundamentally a rhythmic approach to speech training. Patients are trained to emphasize accented portions of speech, in contrast to unaccented portions, alternating between a sense of tension and relaxation. The specific training hierarchy includes work on physiological abdominal movements to facilitate airflow during phonation. Sound is subsequently superimposed as gentle pulses. Learners are then encouraged to become aware of the abdominal movements and a sense of alternating "release" and contraction. Following these initial training phases, utterances are then produced rhythmically on /hu/. There is an emphasis on whole body movement to avoid developing new tensions. Articulation is also trained. The program continues with nursery rhymes or similar rhythmic material and finally, to conversational speech.

## MECHANISM

It is proposed that the rhythmic aspect of the method somehow results in rapid and complete vocal fold closure, thus maximizing harmonic output.

## EFFICACY STUDIES

Kotby and colleagues assessed patients with mass lesions, functional voice disorders, and vocal fold immobility. According to their study, benefits from the accent method were obtained in patients' complaints about voice, the sound of the voice, and, for patients with nodules, a reduction in lesion size. Some other physiological parameters were also improved. Smith and Thyme reported an increase in the presence and intensity of high harmonics in the voice output, at frequencies below 1000 Hz, which could account for improved intelligibility of speech.

## REFERENCES

- Dalhoff, K., & Kitzing, P. (1989). Voice therapy according to Smith. Comments on the accent method (A.M.) for treating voice and speech disorders. Revue de Laryngologie, 110, 407-413.
- Kotby, M., El-Sady, S., Basiouny, S., Abou-Rass, Y., & Hegazi, M. (1991). Efficacy of the accent method of voice therapy. Journal of Voice, 5, 316-320.
- Smith, S., & Thyme, K. (1976). Statistic research on changes in speech due to pedagogic treatment (the accent method). Folia Phoniatica, 28, 98-103.

# Facilitating Techniques

## APPLICATION

Many of the 25 facilitating techniques described by Dr. Daniel Boone may be used across a wide range of disorders, particularly where hyperfunction is involved. Some of the techniques apply instead to under-function, as with paralysis.

## DEVELOPER

Dr. Daniel Boone has systematically described this corpus of techniques, many of them originally described and used by other clinicians.

## DESCRIPTION

The 25 techniques include: altering tongue position; changing loudness; chant talk; chewing (originally described by Froeschels, 1924); digital manipulation of the larynx; ear training (auditory discrimination); elimination of abuse; elimination of hard glottal attack; establishing a new pitch; explanation of problem; (bio)feedback; half-swallow; head positioning; hierarchy analysis; inhalation phonation; masking; open-mouth approach; pitch inflections; placing the voice (resonant voice); pushing approach; relaxation; respiration training; tongue protrusion; yawn-sigh.

The yawn-sigh was specifically described by Boone and McFarlane (1993) as a technique that promotes laryngeal lowering and supraglottal widening.

## MECHANISM

Because of the many techniques, no single mechanism can explain the effectiveness for all of them. For the yawn-sigh approach, which was specifically evaluated in a research study, it is easy to speculate that vocal fold adduction is limited, thus limiting vocal fold impact force and laryngeal trauma.

## EFFICACY STUDIES

One of the facilitating techniques, digital manipulation of the larynx, was assessed in a treatment study by Roy and Leeper. In that study, patients with voice disorders without any known organic basis received a manual laryngeal muscle tension reduction procedure described by Aronson. The sound of the voice and acoustic measures of the voice improved markedly with this therapy, for many or most subjects.

Another of the facilitating techniques that has been studied empirically is the yawn-sigh technique (Boone & McFarlane; Xu & colleagues).

## REFERENCES

Boone, D., & McFarlane, S. (1988). The voice and voice therapy (4th ed.). Englewood Cliffs, N.J.: Prentice Hall.

Boone, D., & McFarlane, S. (1993). A critical view of the yawn-sigh as a voice therapy technique. Journal of Voice, 7, 75-80.

Aronson, A.E. (1990). Clinical Voice Disorders (3rd ed.). New York, N.Y.: Thieme-Stratton.

Roy, N. & Leeper, H.A. (1993). Effects of the manual laryngeal musculoskeletal tension reduction technique as a treatment for functional voice disorders: Perceptual and acoustic measures. Journal of Voice, 7(3), 242-249.

Xu, J.H., Ikeda, Y., & Komiyama, S. (1991). Biofeedback and the yawning breath pattern in voice therapy: A clinical trial. Auris, Nasus, Larynx, 18(1) 67-77.

# Vocal Function Exercises

## APPLICATION

These techniques may be used for any voice disorder for which muscular weakness, hyperfunction or imbalances appear to play an important role.

## DEVELOPER

Most recently, Dr. Joseph Stemple has developed muscle strengthening exercises. Earlier work was reported by Dr. Bertram Briess.

## DESCRIPTION

Vocal function exercise techniques target specific muscles identified as weak or hyperactive, or muscle groups as imbalanced. For example, pitch glides and sustained high or low pitches may be used to address pitch and adduction-related muscles and their interplay (Stemple; Briess).



## MECHANISM

The mechanism by which muscle exercise techniques may address voice physiology are the same as any physical exercise techniques. That is, muscle states themselves should change with repeated targeted use, as should neurocognitive "programs" or patterns of responding.

## EFFICACY STUDIES

In one study, subjects who underwent a "vocal function exercise" program for four weeks improved in phonation volume, flow rate, maximum phonation time, and frequency range, as compared with subjects in placebo and control groups, who did not improve (Stemple et. al., in press).

## REFERENCES

Briess, B. (1959). Voice therapy - Part I: Identification of specific laryngeal muscle dysfunction by voice testing. AMA Archives of Otolaryngology. 66: 375-382.

Briess, B. (1959). Voice therapy - Part II: Essential treatment phases of laryngeal muscle dysfunction. AMA Archives of Otolaryngology. 69: 61-69.

Stemple, J. (1984). Clinical voice pathology: theory and management. Columbus, OH: Charles E. Merrill.

Stemple, J., Lee, L., D'Amico, B., & Pickup, B. (in press). Efficacy of vocal function exercises as a method of improving voice production. Journal of Voice.

Sabol, J., Lee, L., & Stemple, J. (in press). The value of vocal function exercises in the practice regimen of singers. Journal of Voice.

# Lee Silverman Voice Treatment

## APPLICATION

The Lee Silverman Voice Treatment is applicable for patients with motor speech disorders, such as Parkinson's disease. The primary assumption is that vocal folds do not adduct completely and increased adduction will improve vocal loudness and increased phonatory effort will improve overall speech production.

## DEVELOPER

Dr. Lorraine Ramig and her colleagues have been the primary clinicians to develop this technique.

## DESCRIPTION

Patients are trained to increase phonatory effort and adduction and carry over this behavior by using "loud" speech. The therapy program has been developed in considerable detail. Generally four essential elements of the program are: the exclusive focus on phonation; the program is intensive (therapy is provided four times a week for four weeks); the program is cognitively simple for the learner – it emphasizes a single parameter ("think loud"); and therapy fundamentally involves a "recalibration" of the patient's sense of phonatory effort and loudness. When the patient reports he/she is "too loud", the voice is considered within normal limits.

More specifically, vocal fold closure is promoted by initiating voice with maximally prolonged vowels while pushing with the hands, and performing repeated pitch glides. Therapy progresses from these simpler tasks to more complex speech drills.

## MECHANISM

Loud voice production should improve vocal fold adduction (typically impaired in Parkinson disease by vocal fold bowing and by hypokinesia), and pitch glides should improve pitch variability in speech, which is generally limited in persons with Parkinson disease. Other effects are also anticipated as a "by-product". In particular, speech articulation generally improves in clarity. Cognitively, the approach is streamlined for the patient, by focusing on a simple parameter (loud) that holistically generates a series of benefits.

## EFFICACY STUDIES

Studies about the effectiveness of LSVT have been conducted by Ramig and colleagues. In the primary study to date, the following effects were noted: (a) perceptual ratings indicated an improvement in loudness, pitch variability, and intelligibility of speech; (b) acoustic measures indicated an improvement in pitch variability during speech and a change in speech pitch towards the norm for males; (c) more isolated speech testing indicated an improvement in maximum vowel duration and in absolute pitch range; (d) forced vital capacity remained constant. Studies support maintenance without additional treatment 6-12 months post-treatment.

## REFERENCES

Countryman, S. & Ramig, L. (1993). Effects of intensive voice therapy on speech deficits associated with bilateral thalamotomy in Parkinson's disease: A case study. Journal of Medical Speech Pathology, 1(4), 233-249.

Ramig, L.O., Bonitati, C., Lemke, J., & Horii, Y. (in press). The efficacy of voice therapy for patients with Parkinson's disease. Journal of Medical Speech Pathology.

Ramig, L.O. (1994). Speech therapy for Parkinson's disease. In Koller, W., & Paulson, G. (Eds.), Therapy of Parkinson's disease. New York: Marcel Dekker.

Ramig, L. (1992). The role of phonation in speech intelligibility: a review and preliminary data from patients with Parkinson's disease. In Kent, R. (Ed.) Intelligibility in Speech Disorders: Theory, Measurement and Management. Amsterdam: J. Benjamins.

Smith, M., Ramig, L., Dromey, C., Perez, K., & Samandari, R. (in press). Intensive voice treatment in Parkinson's disease: Laryngostroboscopic findings. Journal of Voice.

F. M. Alexander was an Australian actor active in the late 19th century. He developed persistent voice problems that interrupted his performing career for a long period. In seeking to overcome his problem with various means, he came to the conclusion that the seat of his problem was fundamentally caused by a faulty head-and-neck alignment. He subsequently discovered the relevance of the head-and-neck relationship not only for voice, but for movement in general.

In addition to the "technical" issues that he addressed, Alexander focused on "the means whereby." With this term he referred to the way in which undesirable actions and alignment can be overcome in daily living. He emphasized inhibition of interfering actions as a fundamental aspect of skill acquisition, and he described repeated, verbal self-coaching as a means to achieving the desired inhibitions. He also emphasized the critical importance of first sensing the desired outcome, facilitated by manual manipulations by

the trainer, particularly at the base of skull.

Alexander trainers undergo a quite rigorous and extended training program. By the end of it, trainers are able to effectively perform the characteristic base of skull manipulation that, once experienced, is described by many students as an entirely new feeling during voice production or other activities. The outcome is a limited sense of effort in many daily activities and a "kinesthetic feeling of lightness."

Some research has formally assessed the effect of the technique on various movements, but thus far, none has formally assessed its effect on voice.

Jones, F.P. (1976). Body awareness in action: A study of the Alexander technique. New York: Schocken Books.



## CICELY BERRY

Cicely Berry is a British trainer, whose technique is strictly geared towards actors. A fundamental concept in her approach is that fear generates tension and wasted energy. The result is a series of limitations on the actor and his or her voice, that keep the instrument from operating openly and freely.

Her text includes exercises on relaxation and breathing, and on "muscularity" (for meaningful speech). There is also discussion about speaking poetry. She cautions that the "exercises should not make you more technical, but more free."

Berry, C. (1973). Voice and the actor. New York: Macmillan Publishing Co., Inc.

## ARTHUR LESSAC

Arthur Lessac is an active voice and speech trainer, formerly of New York and now, Los Angeles. His origins were in classical singing, with training at Eastman School of Music. His approach to voice and speech has been widely used in theatre and more recently, in speech pathology (see "resonant voice" in this pamphlet).

His approach to voice and speech is fundamentally based on three concepts: "Tonal action", "Structural action", and "Consonant action." Tonal action refers to resonant voice production, facilitated by what he calls the "Y-buzz." Structural action refers to an inverted megaphone facial posture, that extends to the pharynx and hypopharynx, and may partially account for a slight vocal fold abduction noted in some videoscopic examinations of the larynx. Consonant action most particularly refers to the treatment of consonants as instruments in an orchestra, for clean articulation and therefore intelligibility. Some of the consonants (the voiced con-

tinuants) are produced with a resonant "buzz", thus coming full circle with the resonance promoted by the Y-buzz.

In addition to voice and speech, Lessac has already described other "body NRGs" (energies) that relate to movement in general and interplay with voice production.

Lessac, A. (1967). The use and training of the human voice: A practical approach to voice and speech dynamics. New York: Drama Book Specialists. (2nd edition anticipated, 1994, Mayfield Press, Mountain View, CA).

Lessac, A. (1978). Body wisdom: The use and training of the human body. New York: Drama Book Specialists.



# Voice Training in Theatre

## KRISTIN LINKLATER

Kristin Linklater is currently an active trainer from the United States. Her approach is primarily geared toward theatre, but could be applied by the dedicated lay person. The guiding principle of her work is that the "natural" voice is capable of expressing anything we ask of it. However, daily living and conditioning results in the development of blocks that impede natural communication. As such, her approach is not so much a "technique" conceptualized as the accrual of new skills, but is more a means to freeing the natural voice by eliminating interfering patterns.

Her text (see reference) provides detailed exercises for breathing, resonance, power, and sensitivity, and for integrating related actions and concepts in spoken text (i.e. acting).

Linklater, K. (1976). Freeing the natural voice. New York: Drama Book Publishers.

# Evaluation & Comments

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Was the information in this booklet helpful? \_\_\_\_\_

If so, in what manner? \_\_\_\_\_  
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