

Fitzmaurice Voicework: Theory, Practice and Related Research

by

Lynn Watson and Sadhana Nayak

Fitzmaurice Voicework® (hereinafter referred to as “FV”) was developed by Catherine Fitzmaurice as an approach to voice training primarily for actors, but it has also been used to train singers, public speakers and other professional voice users. Fitzmaurice began developing the approach around 40 years ago, and it is currently taught in acting training programs across the U.S. and around the world (Fitzmaurice 1997; Meier 2010; Melton 2003; Morgan 2008; Rubin 1991).

The approach looks to develop effectiveness in how breath is used to produce voice and includes two basic, complementary parts called “Destructuring” and “Restructuring.” The two parts are analogous to elements in Fitzmaurice's description of how the approach helps actors and voice users work with, as she puts it, “freedom and focus”—Destructuring to develop freedom in the voice and Restructuring to develop focus for clarity of thought and emotion in oral communication. In other words, the goals of FV are “to improve the expressivity and range of the voice, and create healthy vocal habits” (Fitzmaurice 2005)¹. This article is a preliminary investigation into links between the theory and practice of FV, and related research in scientific literature. The intent of this article is not to compare FV with other voice training methodologies, but to examine intersections between FV and research studies in physiology and voice science.

Destructuring

At its most basic level, "Destructuring" is a sequence of modified hatha yoga positions that change respiratory patterns. In some instances, the positions are modified in the sense that they are less extreme or strenuous than is typical in the physical exercise form of the yoga positions. A crucial difference between traditional yoga positions and the modified "Destructuring positions" of FV is the pattern of breathing that is used. Instead of the pattern of slow, sustained inhalation and exhalation that is sometimes used while practicing yoga positions, FV asks the student to allow the breath rate, depth and timing to be determined by the effort of the Destructuring position they engage in. As a student of FV remains in a Destructuring position for increased lengths of time, greater (or different) demands are placed on supplying the body with oxygen, and those demands change from moment to moment. The student is asked to breathe with whatever pattern of respiration they sense they need, and to allow the pattern to change in accordance with the demands of the Destructuring position (Fitzmaurice 2005), much as one would allow the breath to change according to need when performing an aerobic exercise or task.

In addition, a variety of Destructuring positions are employed which focus on stretching the muscles surrounding the rib cage, particularly the mid to lower circumference. The stretching of the muscles around the rib cage is intended to increase the flexibility and potential size of the thorax through the raising and expanding of the rib cage, contributing not only to increased breath capacity (lung volume), but more importantly to increased ease and flexibility in use of the intercostals and other muscles surrounding the rib cage. In gathering baselines for one of the studies in *Respiratory Function in Speech and Song*, Hixson et al. (1991) observed that, during a series of respiratory maneuvers made (in an upright position) by a subject group of healthy

adults, "over the entire vital capacity range the volume change of the rib cage exceeds that of the abdomen" (107). The following was noted with regard to another subject group who did speech production tasks, including conversational speech: "the rib cage is relative more and the abdomen relatively less expanded for all phonations than they are in the relaxed state at the prevailing lung volume" (157-158; 169). With regard to loudness in the speech tasks, the latter study noted, "the abdomen is smaller and the rib cage is correspondingly larger for the loud utterances than they are for the soft and normal phonations at the same lung volumes" (158). Consequently, it is reasonable to focus on rib cage movement as a primary factor in voice production for speech, as FV does. Another consideration related to rib cage expansion is breath capacity. It follows that increased rib cage expansion results in increased breath capacity, and developing increased breath capacity is often cited as a key goal for voice training for performance (Rodenburg, 142-151; Barton, 57-60).

With the preceding in mind, rib cage expansion, flexibility and increased potential for breath capacity are only part of vocal skill development in FV. One fundamental goal of Fitzmaurice Voicework is to reduce unnecessary skeletal muscle tension in the body, particularly in relation to musculature for breath and phonation. Here resides one of the fundamental aspects of the "freedom" that the training seeks to develop. Reducing unnecessary skeletal muscular tension is a foundational goal of many actor training programs (Rodenburg, 27-28, 119-121). In acting performance, as in many sports, excess skeletal muscle tension is thought to diminish performance of physical tasks that require agility, concentration, flexibility, balance, spontaneity and continual situational adjustments of the body in space (Saklad 2011, 22-24, 65, 99-100; Benedetti 2009, 13-20; Cohen 1992, 2). Destructuring is used in FV as a way of reducing unnecessary muscular tensions, and this application is described in subsequent sections.

Other desirable vocal skills for performance are spontaneity in breath and speaking (Rodenburg 172-228; Saklad 22-24), which are also addressed through the practice of Destructuring. FV posits that allowing the moment-to-moment respiratory volume and pattern to match the effort of a Destructuring position, including adjusting fluidly with any change in effort or impulse, provides a basic and fundamental method of practicing spontaneity in speaking, particularly in speaking from a scripted text, as actors do.

To add further stimulus to the breathing and muscular activity of Destructuring, physiological muscular "tremors" are integrated into the positions. Tremors are voluntarily induced through the gentle stretching or contraction of specific muscle groups (Fitzmaurice 2000)—for example, stretching the hamstrings. The cause of the tremors used in FV is not fully understood, but there are a number of types and sources of non-disordered tremor that may contribute: "stretch reflex loop" (Constantinos 2005), Golgi tendon reflex (Kistemaker 2013), physiologic tremor and mechanical properties of the body (Hallett 1998) and "limb resonance" (Lakie 2012).

Hallett states in "Overview of Human Tremor Physiology" (1998) that: "physiologic tremor is a ubiquitous normal phenomenon." Physiologic tremor is the tremor that is always present to some degree in the human body. Even when the body is at rest, tremor will occur as a result of the "ballistic" energy of the heart pumping blood. In defining "mechanical" aspects of tremor, Hallett observes that: "Physical objects have mechanical properties that obey the laws of physics, including a joint with its associated muscles." Hallett uses a simple mechanical system as an example—a mass attached to a spring. Hallett provides a formula to calculate the frequency that an object will oscillate based on the inertia (stillness) of the mass and the stiffness of the attached spring. When an object is "perturbed" (stimulated by a physical impulse, such as movement), the greater the inertia of the mass, the lower the frequency of the oscillation in the system; the higher

the stiffness of the spring, the higher the frequency of oscillation. You can try this out yourself.² Straighten your arm in an easy, relaxed way and point at a spot on the floor. You will notice small, slow-ish (low frequency) fluctuation/oscillations in the movement of your finger, which does not stay absolutely fixed on the target spot, but moves slightly around the spot. Then increase stiffness by tensing your arm and hand muscles as you point. You will notice that the small movements of your pointing finger around the spot are faster (higher frequency). Play with the degree of tension in your arm and hand muscles and note the related changes in the frequency of the oscillations.³

Destructuring positions produce a shaking or “tremoring” in various parts of the body, generally originating in extremities. Using the example of the hamstrings, stretching the hamstrings in a Destructuring position results in tremoring that appears to originate in the legs. The following observation was made in an article that discusses a study by Lakie et al. (2012). The Lakie study noted the effects of large muscle movements on physiological tremor in the subject group. The observation provides an intriguing glimpse at one factor that may relate to the tremors employed by FV and the goal of reducing excess muscular tension.

When relaxed muscles are 'stirred' by subjecting them to large enough amplitudes of movement (greater amplitudes than occur in physiological tremor) they become much less stiff. (Herbert 2012)

The Lakie study may have implications supporting FV's use of tremoring to reduce unnecessary skeletal muscle tension in the body. FV tremoring increases the amplitude of movement in otherwise relatively static yogic postures, but does so in subtle ways that allow students to focus on elements of voice such as sensing vibration in the body, or exploring text and images triggered by a text. Or as Fitzmaurice describes:

It [Destructuring] brings to you into focus, where you need to be in order to work, to think the thoughts and image the images you need, to bring your attention where it needs to go. (Fitzmaurice 2005)

Similar to the changes in breathing caused by the effort and stretch of the Destructuring positions themselves, the tremoring aspect of Destructuring also appears to contribute to changes in the rate, volume and rhythmic patterning of the breath. Current research in physiologic and central nervous system (CNS) reflex loop tremors presents an exciting avenue of investigation into the function of tremor in FV. It is hoped that the studies referenced above will provide some possible starting points for further research.

When Destructuring, the student of FV is instructed to use minimal muscular effort to stay within the general shape of the position, and to allow the rest of the body to relax as much as possible. This isolation of effort is intended to reduce unnecessary tension in parts of the body that are not actively involved in maintaining the position (Fitzmaurice 2005; Saklad 2011, 98, 159-163)—particularly the head, neck, shoulders and laryngeal area. The Destructuring positions are also designed to minimize engagement of the muscles of the torso, leaving those muscles free to respond vigorously and spontaneously to the breathing demands of the positions. Later, in Restructuring, this isolation of effort shifts to focusing the most vigorous muscular activity needed for vocal production onto the breathing/abdominal muscles of the lower torso areas, again in part to avoid excess tension in the upper body. Reducing excess muscular tension in the

upper body is a frequently cited goal of voice and speech training (Rodenburg 1992, 133; Barton 1995, 53). In discussing "pressed voice" and the negative effects of hyperadduction of the vocal folds, Ingo Titze notes that "during speech, better use of the breathing musculature (support) to regulate vocal intensity would seem to be an appropriate means of preventing tissue trauma from hyperadduction." Furthermore, in describing a particular speech methodology, Titze states that "use of abdominal and diaphragmatic muscular effort reliev[es] the adductory muscles of some of the burden of generating syllabic stress" (2000, 275). Ways in which FV addresses "muscular effort" will be discussed in the following section on Restructuring.

After practicing moment-to-moment responsiveness in respiratory rates and breathing patterns, and increasing flexibility in the muscles of the rib cage and torso through Destructuring, the student is asked to phonate while in a Destructuring position. At this stage in FV, phonation is produced using semi-approximated vocal folds (Fitzmaurice 2005), which gives the voice a "breathy" quality. The breathy phonation is intended to be a gentle warm-up for later incorporation of fully approximated vocal folds typically used for speaking. The student is guided to phonate on every exhale, without consciously changing anything else about the moment-to-moment pattern of the breath. It should be emphasized that the breathy phonation of Destructuring is not intended to be used in a performance situation—it is an aspect of the warm-up process only, intended to be a gentle lead-in to working with vocal folds that are fully approximated, as appropriate for phonation for speech. The purpose of the breathy phonation, which in FV is referred to as a "fluffy" sound, is twofold: to encourage relaxed laryngeal muscles so as to reduce the tendency toward hard glottal onset or glottal attack, and to provide extensive practice in closely linking breath with voiced onset for speech, thereby avoiding unnecessary pauses or hesitations, particularly when speaking scripted text. In an article on the use of a "semi-occluded vocal tract," Ingo Titze describes using exercises such as lip trills and vocalizing through a straw that also have the "benefit of warming-up the respiratory muscles...without taxing the vocal folds" (2006).

Restructuring

Once a student has learned the Destructuring process, the second primary element of Fitzmaurice Voicework is introduced: "Restructuring." Restructuring typically makes use of fully approximated vocal folds. Restructuring places focus on the movement of the rib cage in breathing, and is a radical break from "rib reserve" breathing as once taught at well-known actor training programs in England, including the Central School of Speech and Drama⁴, and described in the book *Voice and Speech in the Theatre* by British voice teacher, J. Clifford Turner (1977, 10-23). Studies by Thomasson and Sundberg (2003) and Hixon et al. (1991, 375-400) have noted significant rib cage expansion in singing and speech for performance in professional singers and actors.

"Rib reserve" breathing technique requires a primary focus during inhalation on: 1) expanding the lower circumference of the rib cage, then 2) contracting the abdominal "support" muscles to initiate and continue phonation to the end of a phrase. Meanwhile, the initial circumference of the rib cage is maintained during a phrase, an entire speech, or consistently throughout a performance (Turner 1977). In using rib reserve breathing, the goal is to keep the lower rib cage circumference constantly expanded, hence the term, "rib reserve," while the range of motion for breathing is isolated to the abdominal muscle area. Of course, the movement of the diaphragm is coordinated with the abdominal movement, but is not directly observable. When rib reserve is employed, once the lower portion of the rib cage has expanded, it remains held open

and relatively still, and the primary observable movement during speaking is the movement of the abdominal area outward with the inhale, and then contracting inward (back toward the spine) at the beginning of each spoken phrase.

In FV's Restructuring, the performer does not attempt to "hold" the rib cage wide and elevated after an inhalation (Saklad 2011, 100), but after a short delay at the beginning of a phrase and coincident with the need for increased or continued subglottal pressure during longer, louder or more emotional phrases, allows the rib cage to return inward slowly. Instead of attempting to hold the rib cage open constantly as in the "rib reserve" technique, with Restructuring one allows the rib cage to "float down" slowly, lessening the circumference of the rib cage during the course of a single speech phrase. Restructuring does employ abdominal contraction at the beginning of each speech phrase, however. In FV, the typical breathing cycle for Restructuring is described as following the pattern of:

- 1) rib cage expands and abdominal muscles relax (inhalation);
 - 2) abdominal muscles contract and in doing so give a slight lift to the rib cage, which aids in expanding it; beginning of phonation coincides with the abdominal contraction (exhalation);
 - 3) after a short delay, the rib cage floats down slowly during phonation (continued exhalation).
- With the beginning of the next breath/speech phrase, the process repeats.

With very short speech phrases, the downward rib cage movement of #3 may be minimal. In those cases, the rib cage does not collapse downward but remains in its expansive state, while the primary observable movement will be of the abdomen relaxing at the inhalation needed for a new phrase, and then contracting to begin the next speech phrase on the exhalation.

In describing Restructuring, FV makes reference to the transversus abdominis muscle as being the primary site of the abdominal contraction outlined above (Fitzmaurice 2003; Saklad, 65). Supporting FV's contention of the primacy of the transversus abdominis in speaking, recent studies using ultrasound suggest that the transversus abdominis may have a particularly important and isolatable function related to vocal production as distinct from surrounding (more superficial) abdominal muscles—the latter including the rectus abdominis and obliques (Blake 2009).

Contraction of the transversus abdominis as proposed by FV Restructuring is consistent with a study by J.S. Rubin et al. (2011) in which the authors postulate that "controlled elevation of the diaphragm through transversus abdominis contraction" helps to maintain appropriate and efficient levels of subglottal pressure for speaking. The article notes that the muscles of the transversus abdominis interdigitate "with the costal component of the diaphragm as it attaches onto the distal ribs." The interplay between diaphragm, transversus abdominis and rib cage hypothesized in the J.S. Rubin study is supported by studies done by Hixon et al. of breathing strategies in performance used by "world-class professional actors" (1991, 376). Hixon suggests that the contraction of abdominal muscles during speech, as observed in professional actors he studied, may have the effect of working in tandem with the diaphragm to elevate the rib cage: "The diaphragm was activated and worked against the relatively taut abdomen to elevate the relaxed (or nearly so) rib cage" (1991, 389-90). See also (Hixon 2006).

FV Restructuring appears to take advantage of characteristics of rib cage and abdominal actions observed in J.S. Rubin's and Hixon's studies. Hixon notes that the chest wall functions as a sort of "platform" supporting the actions of the abdominal muscles and that: "All of the

subjects [professional actors] employed a chest wall control strategy that is analogous to the 'belly in' strategy used by highly trained classical singers and suggests that there may be...advantages to using such a strategy as opposed to other strategies" (1991, 396). In his study of opera singers Hixon observed that, "predominant activity of the abdomen delivers an upward lifting force to the rib cage that elevates the structure, increases its volume, and places its expiratory muscles at greater and more optimal lengths for generating quick, forceful pressure changes" (1991, 364-5). In her teaching and writing, Catherine Fitzmaurice frequently remarks on the role of the transversus abdominis as functioning to aid in lifting the rib cage, and on the advantages of learning the breath management strategy of Restructuring. She describes and teaches Restructuring as an effective and efficient manner of focusing the effort and activity needed for speaking on the breathing muscles of the rib cage and the transversus muscles of the abdomen, thereby alleviating excess effort from the head, neck, shoulder and laryngeal areas (Fitzmaurice 2003, 2005).

Destructuring and Restructuring are central aspects of Fitzmaurice Voicework, and are used initially with the goal of developing effective, supple and healthy vocal production, and to facilitate the wide-ranging demands placed on the actor's voice by dramatic texts and situations. Fitzmaurice also stresses that in Restructuring, focus on rib cage expansion and abdominal (transversus) muscle use must be flexible and variable to reflect the subtle communicative impulses of the actor's presence in the moment.

Destructuring and Restructuring may be used for various aspects of work on text and acting, but that is outside the purview of this article. Though FV was developed initially for working with actors, it has since been used by speech-language pathologists, singers, teachers, public speakers, and other professional voice users and clinicians. This article is a first step in examining connections between Fitzmaurice Voicework and research studies in voice science and physiology. The authors look forward to developing and seeing more investigations in this area.

A final thought

In performance, breath and muscle must be responsive through an expansive array of intensities, melodies and rhythms, in tune with thoughts and feelings borne into the world through the embodied voice of the actor.

Acknowledgements

This article resulted from a controlled research study on Fitzmaurice Voicework that is currently being prepared for publication. The study was funded with an SRAIS research award from the University of Maryland, Baltimore County (UMBC).

Notes

1. This article includes a detailed, in-depth discussion of Destructuring and Restructuring.
2. A caveat: This example might not apply for someone with a neuromuscular disorder.
3. A recent study by Lakie et al (2012; Herbert 2012) suggests ways in which mechanical properties of "physiologic tremors"--what you just experimented with--may be linked to the typical "resonance" of a limb of the body (small movements exhibited when a "limb is maintained in a postural configuration.") (Lakie 2012).
4. Catherine Fitzmaurice attended what is now called the Royal Central School of Speech and Drama, where J. Clifford Turner taught "rib reserve" breath support technique. Turner was

Fitzmaurice's teacher in her third year at Central. Fitzmaurice later returned to the Central School to teach voice.

References

- Barton, Robert, and Rocco Dal Vera. 1995. *Voice: Onstage and Off*. Orlando, FL: Harcourt.
- Benedetti, Robert. 2009. *The Actor at Work*. 10th ed. Boston: Pearson.
- Blake, Ed. 2009. "Real Time Ultrasound Imaging of the Abdominal Wall: Assessment of Breath Support," *The Moving Voice: The Integration of Voice and Movement Studies*. Rena Cook, ed. *Voice and Speech Review* 6 (1): 372-377.
- Cohen, Robert. *Acting One*. 1992. 2nd ed. Mountain View, CA: Mayfield.
- Christakos, Constantinos N., Nikos A. Papadimitriou, and Sophia Erimaki. 2006. "Parallel Neuronal Mechanisms Underlying Physiological Force Tremor in Steady Muscle Contractions of Humans." *Journal of Neurophysiology* 95: 53-66. doi:10.1152/jn.00051.2005.
- Fitzmaurice, Catherine. 1997. "Breathing is Meaning." In *The Vocal Vision*, edited by Marian Hampton and Barbara Acker, 238-247. New York: Applause.
- Fitzmaurice, Catherine. Spring 2003. "Structured Breathing." *Voice and Speech Trainers Association newsletter*. Vol. 17 (1).
- Fitzmaurice, Catherine, and Saul Kotzubei. 2005. "Interview with Catherine Fitzmaurice." <http://tinyurl.com/15f23fy>. Also accessible at <http://www.voicecoachla.com/writing/>.
- Hallett, Mark. 1998. "Overview of human tremor physiology." *Movement Disorders: Official Journal of the Movement Disorder Society*. 13 (s3): 43-48.
- Herbert, Rob. 2012. "Shaking when stirred: mechanisms of physiological tremor." *Journal of Physiology*. 590.11:2549. doi: 10.1113/physiol.2012.232876.
- Hixon, Thomas J. 2006. "The Hardy Effect." *Journal of Speech, Language, and Hearing Research*. 49 (1): 209-212.
- Hixon, Thomas J., Peter J. Watson, and Mary Z. Maher. 1991. Chap. 11 in *Respiratory Function in Speech and Song*, edited by Thomas J. Hixon, 375-400. San Diego, CA: Singular.
- Kistemaker, Dinant A., Arthur J. Knoek Van Soest, Jeremy D. Wong, Isaac Kurtzer, Paul L. Gribble. Feb. 15, 2013. "Control of Position and Movement is Simplified by Combined Muscle Spindle and Golgi Tendon Organ Feedback." *Journal of Neurophysiology*. 109: (4): 1126-1139. doi: 10.1152/jn.00751.2012.

- Lakie, Martin, Carlijn A. Vernooij, Timothy M. Osborne, and Raymond F. Reynolds. May 1, 2012. "The Resonant Component of Human Physiological Hand Tremor Is Altered by Slow Voluntary Movements." *Journal of Physiology*. 590 (Pt 10) :2471-2483. doi: 10.1113/jphysiol.2011.226449. Epub 2012 Mar 19. PMID:22431335
- Meier, Paul. Jan. 2010. "Tremor into Action." *American Theatre*. 27 (1): 138-140.
- Melton, Joan, and Kenneth Tom. 2003. *One Voice*. Portsmouth, NH: Heinemann.
- Morgan, Michael. 2008. *Constructing the Holistic Actor: Fitzmaurice Voicework: Actor Voice Training*. Saarbrücken: VDM Verlag Dr. Müller.
- Rodenburg, Patsy. 1992. *The Right to Speak*. New York: Routledge.
- Rubin, J.S., I. Macdonald, and E. Blake. March 2011. "The Putative Involvement of the Transabdominal Muscles in Dysphonia: A Preliminary Study and Thoughts." *Journal of Voice*. 25 (2): 218-222. doi:10.1016/j.jvoice.2009.09.001.
- Rubin, Lucille S., Ruth Epstein, Catherine Fitzmaurice, Bonnie Raphael, and Pamela Lynn Harvey. 1991. "Common Speaking Voice Problems: Case Studies with Optional Solutions." *Journal of Voice*. New York: Raven. 5 (4): 321-327.
- Saklad, Nancy. 2011. *Voice and Speech Training in the New Millennium*. New York: Applause.
- Thomasson, Monica. 2003. *From Air to Aria: Relevance of Respiratory Behaviour to Voice Function in Classical Western Vocal Art* [doctoral dissertation]. Dept of Speech, Music and Hearing, KTH (Royal Institute of Technology). Stockholm.
- Titze, Ingo R. 2000. *Principles of Voice Production*. 2nd ed. Englewood Cliffs, NJ: Prentice Hall.
- Titze, Ingo R. 2006. "Voice Training and Therapy with a Semi-Occluded Vocal Tract: Rationale and Scientific Underpinnings." *Journal of Speech, Language, and Hearing Research*. 49 (2): 448-459.
- Turner, J. Clifford, and Malcom Morrison. 1977. *Voice and Speech in the Theatre*. London; New York: Pitman.

Biographies

Lynn Watson has published writing and articles in the *Voice and Speech Review*, *Acting Now*, and *Teaching Breathing*. She has worked extensively as a voice, speech and dialect specialist at leading regional theatres in the U.S. including Arena Stage, Kennedy Center, Ford's Theatre, A.C.T. San Francisco, Mark Taper Forum and South Coast Repertory. Directing credits include the world premiere of Tina Howe's short comedy—*Milk and Water*. Acting credits: Off Broadway and leading classical roles in regional theatre. Professional affiliations: AEA, SAG-

AFTRA, VASTA and Fitzmaurice Voicework (Master Teacher). She is an associate professor at the University of Maryland, Baltimore County.

Dr. Sadhana Nayak is a voice medicine specialist, voice and accent teacher, Indian (Hindustani) classical singer and independent voice researcher with a private practice in Mumbai, India. She specializes in care, enhancement and rehabilitation of the professional voice. Dr. Nayak did a fellowship in "Care of the Professional Voice & Laryngology" at Thomas Jefferson University in Philadelphia under Dr. Robert Sataloff. She is an Associate Teacher of Fitzmaurice Voicework and was awarded a Fulbright Fellowship (2011-12) as visiting faculty at New York University-Tisch. She has conducted training programs for corporate organizations, television networks, drama departments, film schools and broadcast journalism schools.