

Toward Defining “Vocal Constriction”: Practitioner Perspectives

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Summary: Objectives. This research investigated the terminology used in relation to constriction of the singing voice from a range of practitioner perspectives. It focused on the locality, causes, consequences, management, trends, identification, and vocabulary of constriction. The research aimed to develop a holistic understanding of the term “vocal constriction” from participant experiences and perceptions (N = 10).

Method. Data collection occurred through in-depth, semi-structured interviews with a range of voice care professionals. Participants included three professional groups: (1) Ear, Nose, and Throat medical specialists or laryngologists, (2) speech pathologists or speech therapists, and (3) singing teachers. Purposive sampling was used to ensure that the participants from groups 1 and 2 had extensive experience with singers in their practice. The singing teachers were experienced in either classical or contemporary styles, or both.

Results. Participant responses highlighted a discrepancy in preferred terminology, with “constriction” being less favored overall. Several anatomical locations were identified including postural, supraglottic (anteroposterior and false fold), articulatory, and in the intrinsic and extrinsic laryngeal musculature; psychological issues were also identified. Primary causes, secondary causes, and influencing factors were identified. Inefficient technique and poor posture or alignment were considered primary causes; similarly, emotion and anxiety or stress were identified as influencing factors by the majority of participants. There was less uniformity in responses regarding other causes.

Conclusions. The major findings of this research are the respective participant group distinctions, an uncertainty regarding anteroposterior constriction, and that the location and effects of constriction are individual to the singer and must be considered contextually. A definition is offered, and areas for further research are identified.

Key Words: Constriction–Singing–Voice–Tension–Vocal strain.

INTRODUCTION

There are countless ways to describe or talk about the singing voice. Specific terminology, however, is typically context and practitioner dependent. As such, terms have the potential to be, at times, confusing and even contradictory. The focus of this study is the use of the term “vocal constriction.” This term has become prevalent in the discourse particularly in relation to current stylistic demands for singers of contemporary popular music, and in the diagnosis of vocal concerns for singers of all styles of music. However, a lack of uniformity regarding the effects, causes, locations, and terminology can create confusion and uncertainty for singers. This article discusses the use of the term “constriction” from the perspective of singing teachers, medical specialists, and speech pathologists.

The impetus for the research topic was multifaceted. First, the authors had encountered conflicting uses of the term constriction in their respective professional practices. Second, singing is a specific use of the voice, and as Cohen et al¹ highlight, “singers may be more sensitive to voice problems and they experience their impairment differently.”¹ Given the specificity of singing, the research investigated the ways in which constriction of the singing voice is considered and addressed in a variety of professional contexts. Third, an in-depth literature review identified that there is a lack of uniform terminology on what constitutes “constriction.”

Although there is extensive discourse on inefficient or restricted phonation in the literature, there is considerable variance in the use of related terminology. Consequently, the literature revealed several terminologies and anatomical or physiological parameters related to vocal constriction. Terms such as “hyperadduction,”² “pressed phonation,”^{3,4} “hyperfunction,”⁵ “forced” phonation,⁶ “vocal tract impedance,”⁷ and “tension”^{8–12} appear frequently in the literature. Harris et al² defines hyperadduction as being an “overly tight vocal fold closure.”² Sundberg⁴ and Callaghan³ both refer to pressed phonation, with Sundberg stating that pressed phonation is associated with a “strong adduction force” and “high subglottic pressure.” McCoy⁶ uses the terms “free” and “forced” in regard to phonation, and states that as a general guide, “forced sounds give the impression of being taxing on the singer,” whereas free tones “give the impression of ease.” Feindel⁹ also uses the descriptors “free” and “forced.” Another term related to “vocal overload” is hyperfunction. Miller⁵ consistently uses hyperfunction in relation to “excessive activity” in the laryngeal musculature. Conversely, Miller⁵ states that hypofunction of the larynx is the result of “deficient activity” in the laryngeal musculature. In both hyperfunction and hypofunction states, there will be “rigidity” in the muscles rather than balance and flexibility.⁵ Story et al⁷ discuss “impedance” of the vocal tract, stating that it affects the “mechanoacoustic interaction of the vocal tract pressures and the vibrating vocal folds.”⁷

“Tension” is another term identified in the literature that is used to describe types of restricted phonation.^{8–12} For example, in the early 1980s, a Canadian voice clinic group adopted the term “muscle tension dysphonia,”¹¹ which evolved after a correlation was identified between mucosal abnormalities of the vocal folds and “muscle misuses and postural abnormalities.”¹¹ Several

Accepted for publication March 23, 2017.

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Journal of Voice, Vol. ■■■, No. ■■■, pp. ■■■-■■■

0892-1997

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<http://dx.doi.org/10.1016/j.jvoice.2017.03.016>

types of muscle tension dysphonia were classified by Morrison¹¹ in the early 1980s; however, the classification system was reworked in 1993 and the terminology was changed to “muscle misuse dysphonia.”¹¹ Morrison’s diagnostic term muscle tension (or misuse) dysphonia appears in literature in relation to the vocal health of singers.^{6,13} Feindel⁹ also discussed vocal tension; however, this was specifically in relation to actors, stating that “muscular tension constricts sound vibration.”⁹ Middleton¹⁰ also used the term tension when he discussed the “tightened rock throat”; Bunch Dayme¹⁴ referred to “excess tension.”

In relation to performer voice, Lewis¹⁵ viewed both tension and constriction as being potentially damaging. Lewis explained:

I also stress the importance of locating the areas of tension in the body and face, for these can be harmful vocally and distracting to an audience. Since I have done much remedial work, I find that one of the greatest damages to the voice is due either to constriction or an unnecessary need to push the voice.

Specifically, in relation to the singing voice, the term constriction was found in the literature of voice science pioneer, educator, and researcher, Estill.^{16,17} Estill defined constriction as when the false folds close over the true vocal folds. Bagnall,¹⁸ Kayes,¹⁹ Kayes and Fisher,²⁰ and Soto-Moretini²¹ elaborated on this definition. Other practitioners, such as LoVetri,²² McCoy,⁶ and Welch et al²³ have also used the term constriction in a variety of contexts. Although these examples demonstrate the term’s infiltration and acceptance, they highlight that constriction may be, at times, conflated with related epistemologies or used as an overarching term.

Sundberg⁴ and Callaghan,³ for example, both stated that hyperadduction or pressed or restricted phonation can be attributed to inadequate or “insufficient”³ air supply. In the context of contemporary singing, however, Robinson²⁴ contrastingly indicated that a reduction in subglottal pressure may result in hypertension or constriction:

Because the TA muscle is often already dominantly engaged for the contemporary singer, any significant increase in the subglottal pressure may cause the TA to activate further causing hypertension, which might be experienced as “constriction.”²⁴

Sundberg⁴ also stated that pressed phonation is often associated “with a raised larynx position,” which he described as an “uneconomical” way of using the voice. Welch et al²³ stated that “overconstricted vocal folds” may result from muscle contraction associated with the soft palate being “strongly pressed against the back of your throat.” The issue of excessive muscular activity is also evident when LoVetri²² discussed the engagement of the constrictor muscles in relation to vocal constriction. According to LoVetri,²² this may occur when other muscles of the throat and body do not have sufficient strength to produce the required sound, which then causes the sidewalls of the pharynx to narrow, the base of the tongue and the larynx to rise, and the vocal folds to compress tightly. Also, in the context of muscular functionality, Miller⁵ viewed hyperfunction as a muscular imbalance in phonation, which occurs when one muscle or muscle group works excessively and results in another muscle or muscle group to suffer from hypofunction or “deficient activity.” Similarly,

Bagnall¹⁸ also discussed constriction caused by relaxation, stating that “relaxation can have the same adverse effect on the voice.”

The causes of restricted phonation identified in the literature were also varied. Together with stylistic considerations, the causes included anatomical, physiological, and/or psychological issues. As vocal tension can also manifest as a symptom of psychological disorders,¹² emoting anger may also result in “a tense voice [that] leads to pharyngeal constriction and tensing, as well as a shortening of the vocal tract.”²⁵ Morrison¹¹ wrote that muscle tension (or misuse) dysphonia was “due to a collection of causative factors” including technical and postural problems, psychological factors, reflux, neuromuscular abnormalities, and organic processes. Soto-Moretini²¹ and Middleton¹⁰ both acknowledge the use, and expectation, of a constricted sound as a stylistic effect. For example, Middleton wrote:

[Rock singing] is a *natural* expression—by comparison (implicit or explicit) with the trained disciplined technique, the pure tone, the objectifying control associated with classical singing. . . . This flouting of the rules of “good singing” lies at the root of many responses to rock.¹⁰

There was a general consensus in the literature that restricted or inefficient phonation can be deleterious to the vocal folds and/or vocal health.^{2,8,9,13,18,21} Efficient vocal production is reliant on the coordination of five main actions: respiration,^{6,26} oscillation or vibration of the vocal folds,⁶ facilitating resonance,⁶ articulation,⁶ and neuronal interplay.^{3,19} These actions play a vital role in vocal production, and, if not working optimally, may impact the efficiency and health of the voice.^{6,27} Healthy phonation also relies on retraction of the false folds so that potential space for laryngeal postures is widened,²⁰ and involves releasing unnecessary tension in the external laryngeal muscles to allow the intrinsic laryngeal muscles to work freely.²⁸ Some symptoms of physical and vocal inefficiency, and therefore symptoms of constriction, include increased effort, possible fatigue, and discomfort in the “neck-throat-jaw-tongue areas.”²⁸ The external throat or neck muscles, or both, may protrude as well.²² Aural effects of constriction are individual to each voice and may be on a continuum of breathy to forced.¹⁸ Specific effects discussed in the literature include breathy tonal quality,^{18,22} hoarseness,^{6,18} strident or harsh vocal qualities,²⁹ loss of high range,²² diminished vocal and breath control,²² uneven register changes,¹⁴ and easy fatigue of the voice.^{6,18,22} Interestingly, a study by Guzman et al³⁰ identified that rock singers who used growl voice and reinforced falsetto showed hyperfunctional activity in the laryngeal and pharyngeal areas. However, it was determined that the hyperfunctional activity did not correlate with “major vocal fold disorder(s).”

Additional literature inconsistencies related to the possible anatomical and/or physiological locations of constriction. Estill,^{16,17} Kayes,¹⁹ Kayes and Fisher,²⁰ Bagnall¹⁸ and Soto-Moretini²¹ all related constriction specifically to the closing over, or coming together, of the false vocal folds. McCoy⁶ referred to constriction in relation to the entire vocal tract area. Feindel⁹ listed the laryngeal area as a possible location; however, she also listed the tongue root, jaw, shoulders, neck, and face. LoVetri focused on the constrictor muscles, which are part of the extrinsic laryngeal

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