



Case Report

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The Insertion of Semiocluded Vocal Tract Exercises in the Teaching and Practice of Vocal Technique - A systematic review and Case Study among Vocal Technique Teachers Residing in Brazil and Portugal

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Abstract

The literature related to the physiology of the singing voice has gained more and more space within the teaching and practice of singing both in relation to understanding of concepts related to this practice regarding the use of specific vocal exercises, among them, semiocluded vocal tract exercises (SOVTE). As they have specific functions, the use of these exercises is widely discussed and spread in the field of speech therapy. However, the application of these exercises in the singing voice still needs further investigation. The main objective of this study is to perform a systematic review of literature on the use of SOVTE in the singing voice in the last five years, diffusion and access among active singing teachers living in Brazil and Portugal.

Keywords: SOVTE, Speech Therapy, Voice Technique, Vocal Physiology, Teaching Singing.

Introduction

The practice of singing, specifically the teaching of the singing voice, has been constantly updated in the latest years, mainly involving concepts and knowledge that exceed the purely musical contents, entering the field of study of voice physiology [1]. These constant updates are a reflection of both the improvement of physiological knowledge through technological development as well as through countless laboratory tests that make it possible to work together between the voice physiology and singing voice practice, obtaining as a final result a better comprehension and improvement of the voice performance. This approximation has not only contributed to clarify processes previously explained and empirically conceptualized in the singing voice but has also

allowed us to offer a safer and more assertive approach for the development of the singing voice. The limiting factor of working and relying only on empiricism (sensations) in the teaching of vocal technique is that it can easily cause vocal misuse due to confusions and misunderstandings caused by the lack of clarification and definitions of pedagogical concepts whose controversies are generated through metaphorical descriptions [2].

SOVTE and the Singing Voice

Semiocluded vocal tract exercises are all those that present in their accomplishment some type of occlusion in the vocal tract. This resistive component is responsible for auxiliary the vibration

of the vocal folds modifying the format of the mucosal wave and the vibration pattern of the vocal folds providing an economic phonation [3]. The SOVTE has demonstrated very satisfactory and beneficial results in patients of the speech voice clinic by improving the proprioception and facilitating the interaction between Vocal Source and Vocal Filter, decreasing the risk of trauma during the vibration process of the vocal folds [4]. Regarding the singing voice, the use of SOVTE as a vocal warm-up method has showed substantial and immediate improvement in the acoustic indicators [5,6].

Through borrowing techniques used in speech therapy, this space has been gradually explored by vocal technique teachers. These teachers have adopted the use of SOVTE without the support of external instruments (Finger Kazoo, blowing sound, humming) and with the support of external instruments (Lax Vox, high resistance tube, breath Booster, shaker) [7] opening an essential space for scientific research that seek to assess the advantages and disadvantages of the use of these exercises in the long term in the singing voice.

The necessity to assess the use and dissemination of SOVTE in the context of the teaching of the singing voice and also its status of research development and investigation permitted the elaboration of some objectives:

- i. To analyze through a systematic literature review, the advantages and disadvantages of the use of SOVTE in the singing voice and the status of its development as research as well as its shortcomings.
- ii. To evaluate the diffusion and application of these exercises in a teaching environment among singing teachers living in Brazil and Portugal.
- iii. To verify the advantages and disadvantages indicated by the teachers regarding the use of these exercises applied directly to the singing voice.

Methodology

Systematic Literature Review

The literature review method used was the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), more specifically the flow diagram method (2020) (available at: <https://www.prisma-statement.org/PRISMAStatement/>).

As part of the review process, three databases were selected (Scopus, Web of Science and PubMed), defined the languages (English and Portuguese), publication period (last 5 years) and the keywords: SOVTE, Semiocluded Vocal Tract Exercise, Singing Voice. These filters allowed the following results to be achieved (Table 1):

Table 1: Summary of the systematic literature review using the PRISMA protocol.

Identification	Scopus (n = 78) Web of Science (n = 25) PubMed (n = 43)
Screening	Records Screened (n =146)
	Duplicate Records Removed (n = 16)
	Records Protected (n = 13)
	Records Excluded (n = 96)
	Reports Assessed for Eligibility (n = 41)
Included	Reports Included in qualitative review (n = 15)
	Reports of included studies (laboratorial tests) (n = 26)

Considerations about the Systematic Literature Review:

- i. The protected records have been primarily discarded.
- ii. A total of 15 records are literature reviews.

- iii. A total of 26 records are laboratory studies that includes tests with singers.
- iv. The exercises most often cited in the literature reviewed were the “Lax Vox” and the “High Resistance Tube”.

Case Study Among Vocal Technique Teachers Residing in Brazil and Portugal

Table 2: Questions presented about SOVTE to teachers between September and October 2022.

Question	Yes	No
Are you in the habit of using the SOVTE exercises with your students without external instruments?	100%	0%
Are you in the habit of using the SOVTE exercises with your students with the help of external instruments?	58,8%	41,2%
Have you participated in any long-term studies on the use of any SOVTE?	11,8%	88,2%
Do you feel any disadvantages in using SOVTE?	11,8%	88,2%

Through questionnaires composed of 12 objective and descriptive questions, 17 teachers of vocal technique residing in Brazil and Portugal anonymously answered questions about SOVTE.

The questions had as their primary objectives to assess how and in which opportunity they became aware of SOVTE, how they apply it in their daily teaching and study routines, if they use external

assistance equipment or not, if they identify improvement in the student's voice after the application of the exercises, as well as the advantages and disadvantages of its use in the singing voice. From

this questionnaire we obtained the following results (Table 2):

- Consider the variable 5.9% corresponding to one teacher.

Other relevant facts (Table 3):

Table 3: Percent of opinion presented by teachers regarding SOVTE.

58,8% of the Teachers have participated in training regarding SOVTE;	100% of the teachers use SOVTE exercises without adding external instruments ("V", "G", "Z", Lip trills, Tongue trills, finger kazoo and atc).	11,8% of the teachers feel a MILD improvement after applying SOVTE;
35,3% of the Teachers have used personal research about SOVTE;	58,8% of the Teachers use SOVTE exercises with adding external instruments with their students (Kazoo, Lax Vox, breath boosters, high resistance tube).	58,8% of the teachers feel MODERATE improvement after applying SOVTE;
5,9% of the Teachers had contact with SOVTE in case of voice treatment.	Most teachers use fricative consonants in their daily routines ("Z", "V", "G", Lip and Tongue trills, Lax Vox)	29,4% of the teachers feel EXTREME improvement after applying SOVTE.

- Some Teachers outsource SOVTE work using external instruments (Lax Vox).
- The majority of teachers described the necessity of knowing the correct "sensation" of the exercise in order to be able to perform it effectively.

One advantage was generally agreed upon: The speed that SOVTE demonstrates in the vocal warm-up process.

Two disadvantages were agreed upon: The lack of adequate preparation and training for the use of these exercises on a specific basis, and the absence of research that clarifies the application of these exercises in the singing voice as well as their consequences.

Conclusion

After the systematic literature review and the case study conducted, it was found that the effects of SOVTE are considered beneficial and, singing teachers perceive excellent advantages in the vocal warm-up process and in the improvement of acoustic indicators in singers, however, there is a lack in studies that relate SOVTE to the teaching of the singing voice mainly in its long-term application [8]. It was also found that although the interviewed singing teachers use the SOVTE as a teaching and self-study practice tool, many of them uses different strategies and applications of the same exercise, and still neglect particularities such as: time of use needed, intensity, and variations, emphasizing the necessity of randomized studies especially applied on singers and singing students.

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Conflict of Interest

No conflict of interest

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