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Module **BMPF7013** Independent study

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“A study into vocal health for mitigating problems for extreme metal singer and teachers”

1. The portfolio

Introduction & Rationale

During the process of this study I will focus on vocal health with an interest on extreme metal vocalists and professional extreme vocal coaches and teachers who use their voice in more advanced ways such as growling and screaming in everyday basis. Due to the demanding and severe nature of their vocal skills, extreme metal vocalists frequently struggle with vocal health issues. The excessive use of the vocal folds necessary for extreme metal vocal styles, such as growling, screaming, and guttural noises, can cause damage and voice loss. This study intends to investigate methods and approaches that can be used to extreme metal singers' vocal health issues. Vocal health is critical for professional voice users, who can be thought of as vocal athletes who rely on the overall condition and health of their instrument to teach and give performances (Castelblanco et al., 2014).

Dealing with vocal problems and vocal rehabilitation has become a large part of my work and that is the main reason I am eager to investigate the existing sources on vocal health for singing and teaching hoping to find some information on extreme singing as well. Working with professional metal singers and teachers for my previous module, made me realise that vocal health issues is something that we deal with almost all of our students and yet there is not specific instruction for extreme metal singers but more general advice on vocal health when a vocal problem occurs. The rationale of this study stems from exactly this gap between the existing research on the topic of vocal health for extreme vocal professionals and the need of the professionals to have a guide for demanding periods of workload.

As a teacher and performer of extreme vocals myself, I do from time to time experience overuse of my voice and need to find ways to overcome this due to a performance or lessons that cannot be cancelled. This can result in an additional stress both physically and mentally. Although overuse and vocal fatigue are very common issues among voice professionals, the epidemiology of vocal problems, particularly those that impact people who use their voices professionally, is little understood. Marge (1991) claims that there is discrepancy in the definitions of a vocal problem when studies comparing the frequency and prevalence of voice abnormalities are compared.

But what is a vocal problem?

As stated by the World Health Organization's (WHO, 1980) worldwide classification of disorders, a disorder may include impairment, disability, and handicap. This could be a helpful resource for information on vocal issues. Vocal impairment should preferably be distinguished from vocal disability and vocal handicap in a valid definition of a voice condition. In accordance with WHO guidelines, a vocal impairment is a disorder of laryngeal functioning (dysphonia) that may be defined by acoustic, perceptual, structural, physiological, or psychological aspects. The impairment on the capacity to do tasks like speaking or singing has an effect (or effects) that have an impact on the voice. The handicap is the result of this disorganized output, and it may have implications on the job market, the economy, and society. Given the growing number of people who depend on their voices for work, occupational voice health is becoming a significant concern in occupational health and safety. Some occupational groups have been identified as having a higher risk of developing vocal disorders due to their specific working conditions in a number of studies (Williams NR, 2003, Phyland & Miles, 2019, Cantor Cutiva LC, 2018). Singers who are classified as "vocal performers" are more likely to acquire voice issues. Contemporary commercial singing has not received nearly as much attention as classical singing. Non-classical singing is often thought to be harmful to vocal health, therefore knowledge on the issues that contemporary commercial singers provide to otolaryngologists and other healthcare practitioners is limited (Morawska et al., 2022).

Gap in research

Singers require more from their voices than the typical person in order to give diverse vocal expressions, putting them at a much higher vocal loading and potentially putting them at a higher vulnerability and sensitivity to vocal damage. This weakness may be particularly present in more complex vocal approaches, such as singing with increased supraglottic narrowing for a metallic quality and rough voice effects (Aaen et al., 2022). Nevertheless, very little is known about the health and lifespan of singing with voice effects. Despite the fact that vocal health for singing voice has been studied across a range of populations, contexts, and genres using a variety of strategies, including anecdotal self-reported data and questionnaires, acoustics, stroboscopy, electroglottography, high-speed imaging, and MRI-imaging, only sparse research records vocal effects and does not concentrate solely on the wellness of the singing techniques applying supraglottic movements as a noisy sound source (Aaen et al., 2022). Although it is obvious that extreme vocal effects may sound exhausting or harmful to a new ear when compared to opera or musical theatre singers for example, the health of these sounds is frequently contested in voice pedagogy, which is regrettable given the scarcity of evidence on the subject. As a result, rougher voicing has always been associated with vocal abuse (Guzman et al, 2019).

This is in line with a long-standing and relatively established vocal pedagogy theory that asserts rough-sounding noises are less healthy than other styles of singing. But this theory is problematic. The main reason is because this theory is not supported by existing body of literature. Overall it is

based more on the sounds being associated with negative feelings and giving the impression of being harmful to the voice. Additionally it limits the advancement and wide-spread availability of effective clinical and pedagogical advice for singers in terms of training and producing these sounds. Despite the “bad reputation” of extreme and heavy metal vocals, there is a growing urge from people to learn the strategies of the production of healthy distorted sounds which led to more interest on the scientific aspect of these effects. There has also been an increase of the number of extreme vocal coaches and singers compared to some years ago and this was among the topics I covered at my presentation for module 3. These facts led me to do this research on vocal health for extreme singers and coaches.

Planned program of study

Aims and objectives :

- To increase my knowledge and comprehension on the aspect of extreme voice production in order to become a better instructor and performer.
- To thoroughly examine and comprehend the significance of vocal health for professional extreme singers and teachers.
- To have a thorough understanding of vocal health in relation to the most recent academic research.
- To review if the most recent studies on the subject of vocal health can inspire fresh ideas for use in the studio/practise room/classroom by extreme voice professionals.
- To improve my research skills by developing a deeper awareness of the procedures involved in doing a literature review.

Research objectives :

- To carry out a thorough search for related books, journals, essays, and websites in order to find individuals who have contributed to the field of vocal health for extreme singers and teachers.
- To reflect on my own strategies on vocal health at both fields of teaching and performing.
- To evaluate the positive impact of vocal health knowledge on my extreme voice students who often get very stressed prior to a live show.

- To pinpoint the gaps in the existing literature on this subject and identify the areas where additional investigation is required.

Timescales

The suggested timetable for this study is displayed in the chart below.

Goal	January	February	March	April	May	June
Finalise topic w tutor						
Aims & Objectives agreed						
Book research						
Review						
Draft						
Submission						

Literature review process

In order to be able to formulate a literature review that would fit in a rather “new” theme such as vocal health for extreme voice professionals, I had to think in a more creative way. What suited best for me was to read again my previous papers and check the most intriguing topics and common questions that kept appearing in all my researches so far concerning extreme vocal effects. It is my hope that using those as a starting point for my literature review will enable me to tailor it appropriately.

- What are the basic types of distorted vocals and do they all have the same amount of constriction at the vocal folds?
- What technical skills do I need to impart, monitor, and check for in order to enable pupils to produce distorted sounds without any effort?
- What is the reason distorted vocals are considered to be harmful or “wrong”? Is there solid proof for this claim?
- Why do we even need vocal health for extreme voice professionals? Is it different from vocal health for singers and teachers in general?
- Are there some easy steps that one can follow when hoarse but having a gig in a couple of hours?

The literature review in a research accomplishes several purposes and that is my aim for my study as well :

1. To provide the reader with information on the findings of additional research that are closely related to the one being discussed (Fraenkel & Wallen, 1990).
2. To connect a study to the wider, ongoing discussion about a subject in the literature, bridging the gaps and extending earlier investigations (Marshall & Rossman, 1989).
3. To offer a structure for demonstrating the significance of the investigation (Denney & Tewksbury, 2013).

I have already started looking for pertinent articles and specialised publications online as of the time of this writing. I have found related material to vocal health and extreme voice effects in Academia, Journal of voice, Bast Training, Vocal Health education, NATS journal of singing, CVT research site, Science Direct, National Library of Medicine and American Speech-Language-Hearing Association. In extreme vocals the material is very restricted but with vocal health for singers and teachers, choirs and classically and musical theatre trained professionals there is more information. Since I am familiar with extreme music and vocals, I want to evaluate the scope and content of the topic in well-known extreme singers and teachers videos and articles. Although books may not have been published yet, fresh videos, interviews, blogs, essays, etc., appear frequently these days.

For this research, literature on vocal health from a variety of academic fields will be reviewed, including voice speech, voice technique, and gymnastics to mention a few. Reading up on the subject has shown that the material in the field of speech therapy originates from a scientific viewpoint but at the same time it includes an important amount of empirical information. It is important to be careful when dealing with material, which ranges from scientific to creative, and decide what is pertinent to this project and what may be stored for more study or interest. Since my research deals with a very specific population, the extreme voice professionals, I would describe the above as purposive sampling. Instead of choosing elements or examples at random, purposive sampling approaches choose specific ones based on a specified goal (Tashakkori & Teddlie, 2003a). The most essential literature, in my opinion, belongs to the category of voice science. The study will be conducted from a historical perspective in order to comprehend the topic's beginnings and the depth of its evolution. Learning about how harsh vocals were seen and interpreted in the fields of singing and teaching, in my perspective, is crucial to comprehending this research. Additionally, I would like to discover If there is a knowledge gap between when a topic enters pedagogical literature and when it enters scientific literature. The option for advancement to use in my teaching studio is proposed by this continuing into scientific literature, which is outside of the focus of a substantial number of the teachers.

I will choose a reflective approach at this point as reflections help students better comprehend who they are through the concentrated and organized expression of their thoughts and experiences (Gelter, 2003; Ryan, 2011). Additionally, they strengthen their desire to learn in the future. I must be disciplined and organize a wide variety of reading using a systematic approach in light of the time limits mentioned above. Since my topic includes several disciplines, the reading will also be an integration of different ideas and concepts. Creating ties between concepts, theories, and experience is the goal of integration according to Hart. Applying a technique or methodology from one field to another is what it is all about. Combining parts from several theories to create an original framework or offer a fresh perspective (Hart, 1988). During the time of the study, I will have to take notes to be able to connect my findings. Ridley argues that taking notes when doing a research is a useful tool for locating and retaining important information, for recalling and focusing during research and writing, for seeing links between sources, and for avoiding plagiarism (Ridley,

2008). Some more suggestions on notes that I intend to follow come from Lipson. Some of these tips include comparing sources to one another and looking for discrepancies and consents, reading the abstract first and then the introduction and conclusion, taking notes on details relevant to my issue, considering what I am reading, and posing questions to myself about the articles (Lipson, 2005).

Denscombe urges information to be categorized as soon as possible. He claims that by executing this, search engines can more easily identify important terms that are associated to the issue (Denscombe, 2007). After doing some additional study on the categorization of information, I came across Subramaniam's excellent paradigm for assessing various forms of information. The paradigm developed by Subramanyam divides knowledge sources into four groups: primary (provide direct and unfiltered access to information), secondary (interpret, analyse, or evaluate primary sources), tertiary (overviews or summaries of a particular topic or field) and grey literature (materials that are not published in conventional commercial channels) (Subramanyam et al, 2002).

Although there is not an official university for vocal health, it can be found in many universities as a course for singers in their BAs. From what I have researched so far for this subject, the Vocal Health Education based in the UK is one of the most popular online organisations with accredited courses on vocal health and there are many voice centres and clinics around the world for vocal rehabilitation. There are standard operating procedures for vocal hygiene and health at these clinics, as well as similar vocal exercises to those taught in the classroom by singing instructors (metal or not). The most popular exercises are humming, lip rolls, and straw exercises. Because of this, I think empirical data could be quite helpful for putting ideas acquired through evidence into action. Although I have attended some courses for vocal health, I cannot say that I am very familiar with it or the vocal rehabilitation. I am aware that I will need to read widely and conduct extensive research in order to find relevant material for vocal health as well as material from other fields to support my study. Reading is the primary action that, in turn, inspires additional reading and connects the ongoing procedures of the search and acquisition circle with the larger understanding and evaluation circle (Boell & Kecmanovic, 2014).

As I become more familiar with the literature, I anticipate that the references and quotations will point me toward further publications that may be of interest. I am aware that there will be a great amount of new information that I will be eager to add to my study so I will have to be very careful to maintain clarity and not get lost in the material. Despite how challenging it is, most writers try to write in a clear, consistent, and cohesive manner, regardless of the length or subject matter of their works. However, coherence, consistency, and clarity are crucial since without them a piece of writing risk becoming incomprehensible. As a result, the work may be misinterpreted, ignored, or used contrary to what the author intended (Hart, 1988). I will try to keep my focus on the subject of vocal health for extreme voice professionals and at the same time analyse in an effective manner.

I look at this study from the perspective of both a teacher and a performer of extreme vocal effects who wants to better understand how vocal health can help singers and teachers to have better performances and better days at the classroom in terms of vocal misuse. My own individual student experiences have been diverse due to the fact that I did various educations and had various teachers with different perspectives on the subjects of technique and repertoire. I have also added a lot of vocal anatomy concepts into my instruction after seeing how beneficial it is not only to me as a singer but also to my pupils. Despite having had so many contradictory experiences thus far, I think there is always a chance that pre-existing bias will get in the way. As a result, I am aware that in order to better comprehend this topic, I must work without prejudice.

I am tackling this project from the standpoint of my teaching practice, which is founded in the heavy metal and pop and rock genres. The majority of pedagogical publications, on the other hand, are from the world of classical singing, where the stylistic criteria are extremely different. Analyzing the applicability of vocal health to extreme and modern music and whether it is based on a particular style will be a part of the process. I am also aware of the connections between the issue of vocal health and other topics like posture, yoga, and vocal technique. These disciplines are crucial to this subject and I will try to include their core elements to my study without being too analytical. I believe that more analysis might come in future research. I will read in-depth but focused material as a result.

In the end, I want to deepen my knowledge of voice health, look for recurrent themes and ideas in the literature and enhance the ability to translate information into practical ways in my teaching.

Critical Reflection

The topic I chose to research for this module is vocal health for extreme voice professionals and how to use vocal health as a tool to pull through demanding performances and lengthy teaching schedules. The objectives of the project were to enrich my knowledge on the existing literature on vocal health for singers and voice teachers so that I could build a solid platform on which I would create new strategies for mitigating problems for these professionals. It made sense at the time that I decided to do this research to use my experience as an aid because I am an experienced extreme vocal performer and teacher. I was hopeful that my experience thus far would provide me with material to work on new teaching tactics in light of Dewey's reflection on experience (1933), which asserts that one learns not from experience but from reflecting on the experience.

I thought that most voice teachers and experienced singers would be familiar with the subject of vocal health in general as I started my search. I also had the impression that I would find countless sources for vocal health and vocal hygiene since they play a very important role for the good vocal

health of voice professionals. I did not expect of course to find data on extreme metal voice professionals since I have been struggling with this issue from the beginning of this MA journey. On the other hand, when I started looking at vocal pedagogy books and academic sites with different papers, the majority of them only briefly touched on the subject, giving information that was largely connected to things like constriction in the larynx or excessive vocal load. And by this point, I am aware that the topic of vocal health is more multifaceted. Furthermore, rather than heavy rock and metal singers, many publications and research studies focused on students of classical and musical theatre, so I had to be cautious about the data I collected for my study.

I used Gibb's reflective model (1988) to make sense of the data that I was reading and the experience I had already. I tried to follow the six stages of the reflective cycle to be able to keep an order of both the literature and my thoughts. My ability to distinguish between what I knew and what I did not know improved as a result of this. Gibbs first recommended applying the model in recurring scenarios, and given that I have a repeated program with my students as well as with my rehearsals and live performances, I felt it was suitable for me to go through these experiences. Additionally, I could apply it to brand-new customers who desired one and off sessions for specific problems as a stand-alone experience. I took notes as I learned from my experiences as well as from works of literature that I used into my teachings and private practice. Parallel to this, I started to really study the literature and consider whether my methods could be improved, so I taped some of my lessons that were about vocal health advice for my extreme metal vocalists. The practitioner should not be discouraged by flaws in application that may come to light during this process of reflection on action and should instead embrace this as a feature of the path towards becoming a successful practitioner (Bisson, 2017).

I stayed organised and on track as I conducted preliminary research on how to perform a literature review. But as soon as I started reading, things became kind of chaotic to me. Because although the topic of vocal health was mentioned in various papers, the analysis was somewhat shallow for my original plan and I had to be careful to extract all the needed information and then combine them in a way that makes sense for my study. I felt overpowered by this and like this idea was just too grandiose. My initial project objectives appeared to be impossible to meet, which led me to begin to question my competence. I had to change my learning intents throughout the research because of this, as I had to accept the project's size. This on the other hand, led me in shaping my projects for the following modules so I would say that it had a positive result for me in the end.

I made the decision to diversify my sources as a result. I began reading vocal hygiene guidelines from voice care facilities all over the world and looking for further details on websites like Vocal Health Education, schools and universities all over the world. That assisted me in discovering further data, which ultimately guided me to new literature. I began to feel more confident in the study and what I could learn from the process when key authors and concepts were made clear.

The project's timing seemed worrisome to me. It required time management because it fell during a hectic period at work for me. Due to my inability to concentrate on one task for longer than five minutes, my lack of attention, hectic work schedule, and additional studio recording sessions all contributed to my high level of stress. This type of study was hard due to the intensity of the reading, and I got disappointed at my inability to advance in these circumstances. I could not sleep, so I started reading in the middle of the night.

Did I find the methodology productive?

I am still uncertain about this as it has to do with the nature of the study. Collecting of data and reading the literature about vocal health turned out to be more spontaneous than I have expected. Using Gibbs' model helped me to keep track of my study and I am optimistic for the modules to come. For my lessons in relation to vocal health I tried to :

- Clearly describe the incident so that I understand what took place. (Description).
- Examine the thoughts I had while having that experience and how they might have affected it. (Feelings).
- Examine what went well and what did not (Evaluation).
- Clarify what took place (Analysis).
- outline what I have learned and what I can do better going forward. (Conclusions).
- What would I change going forward? (Action plan).

2. The assignment

“A study into vocal health for mitigating problems for extreme metal singers and teachers”

With a focus on extreme voice specialists, this independent study will investigate and take into account the existing vocal health literature. Related disciplines will also be examined. Extreme metal singers are renowned for their ability to make powerful, frequently guttural sounds that are a crucial component of the music they produce. The vocal health of these performers, however, can be significantly impacted by their distinctive singing style, which can result in concerns ranging from hoarseness and vocal fatigue to more serious disorders like nodules and polyps. A thorough investigation into the best practices and procedures for preserving vocal health in this particular singing style is required in order to address these issues and achieve optimal vocal health among extreme metal vocalists. The goal of this paper is to examine the subject of vocal health among extreme metal singers and to present workable strategies for addressing any resulting issues.

I find it useful at this point to give some core details about the context of the environment that extreme vocals sit. Taking musical cues from a variety of heavy metal subgenres, such as black metal, death metal, and thrash metal, extreme metal is a subgenre of heavy metal. Using harsh, guttural, and even incomprehensible vocals is a feature that distinguishes Extreme Metal from other heavy metal subgenres. To create their distinctive sound, extreme metal vocalists use a range of various methods, such as growling, screaming, grunting, and shrieking. Vocalists in a variety of genres, including Rock, Pop, and Heavy Metal, frequently employ vocal effects that sound strained, hoarse, or harsh without the vocalists themselves actually being hoarse, having laryngitis, or voice exhaustion, according to research. These effects are used to add more expression, feeling, and/or emotion to singing (Aaen et al, 2021).

During the last five to ten years that the topic of extreme vocals is being investigated more thoroughly by voice scientists, complete vocal technique and individual singing pedagogues, there is still some debate on the “newest” trends in genres like deathcore and hardcore concerning fry screaming or yell screaming and the anatomy and physiology behind those techniques. I can see that there are still unresolved anatomical questions. The topic of vocal fold and larynx restriction is frequently brought up. But other processes for regulating intensity above and within the larynx are still poorly understood (Titze & Sundberg, 1991).

The goal of the study is to improve my knowledge of the relevant anatomy and physiology and to create fresh approaches to ease vocal fatigue that can be useful in my teaching studio. I organized my study using Borton's "What?, So What?, Now What?" framework with the aim to make sense of my research and compile my ideas (Borton, 1970). It was helpful to differentiate between the knowledge that already exists in the discipline of vocal health and how that has been incorporated into vocal pedagogy using the "What?" question. "So What?" gave me the opportunity to consider

whether the “What?” was applicable to my teaching studio and the singing voice. How the pertinent information might be incorporated into realistic teaching practices is the straightforward question posed in “Now What?”. It is crucial to define the topic in order to comprehend the “What?” part. Defining vocal health would be avoiding overuse, infections, and other problems with both the speaking voice and the singing voice. Many voice instructors who teach voice in performance training programs frequently concentrate on vocal health. Vocal hygiene and how to be proactive in seeking out medical assistance when necessary are topics that voice educators frequently highlight (Ragan, 2017; Manternach, 2017). Vocal health is of utmost importance for those whose singing and speaking are their means of subsistence. Extreme metal singers need to take special care to keep their vocal cords healthy since they frequently use techniques that put a great deal of strain on them. Lack of care can lead to a variety of issues, such as hoarseness, vocal fatigue, nodules, or even total voice loss.

Nevertheless, not only extreme singers are in danger. Students entering the area of vocal performance after completing programs in acting, musical theatre, and classical voice face high vocal demands (Flynn, 2020). Without the proper education and information, including when to seek medical assistance, these needs cannot be properly satisfied. Elite stage actors frequently perform at least eight shows per week in theatrical musicals and plays where they may be required to sing, yell, cry, grunt, or utilize character voices or other lengthy vocalisms while engaged in stage combat (Rangarathnam et al., 2017). Professional opera singers are also required to self-amplify in concert halls with a variety of acoustics, put up with demanding travel schedules, and participate in grueling rehearsals. The capacity of performers to negotiate the industry's professional requirements will only grow with a knowledge of vocal health (Flynn, 2020). Numerous studies have examined students' vocal hygiene practices while in the classroom. Donahue et al. examined first-year musical theatre students about their vocal practices and discovered that half of them at the time reported had unfavourable vocal problems (Donahue et al., 2014). Kwak et al. discovered that aspiring classical singers reported an interest to find out more about voice production (Kwak et al., 2014).

Research has also been done on how professionals maintain their vocal health. According to a poll by Gehling et al, over 25% of Broadway actors had been diagnosed with a vocal damage but continued to use dangerous vocal techniques at the same level as the general population (Gehling et al., 2014). According to a different survey, 24% of singers and vocal instructors did not seek treatment for their voice problems (Weekly et al., 2018). Even though research like these offer priceless knowledge about vocal health, there are not any studies that examine how well undergraduate courses in vocal health are taught at the moment. Furthermore, while some studies have been done on actors who do not sing and their vocal health, the majority of those published thus far have focused on vocalists (Lerner et al., 2013). But despite that, the health and lifespan of vocal effects-based singing are not well understood.

To ask the "What?" and "So What?" we must take into account the circumstances in which vocalists convey messages through extreme music. There are cultural variables to take into account, in addition to the fact that words are performed with greater extremes in dynamics, rhythm, pitch, and voice quality than the spoken voice. Extreme metal music has a considerable cultural and emotional component in addition to the physical demands of the vocal performance. Dark and angry lyrics that address existential topics like death, despair, and social injustice are frequently characteristics of extreme metal. The vocal delivery is powerful, conveying unfiltered emotions and fostering catharsis in both the artists and the audience. The vocal folds may become more stressed and strained as a result of their emotional intensity and commitment to their song, increasing the risk of voice damage. Therefore, when researching voice health for extreme metal singers, it is crucial to grasp the cultural and emotional background of the genre.

In genres like Heavy Metal, Rock, Gospel, Jazz, Alternative, Pop, some Musical Theatre repertoire, as well as in World Music, Folk, and Tribal music, vocalists use extreme, or simply rough-sounding vocal effects for certain types of emotional expression in spoken word and chanting notes (Aaen et al., 2022). I dealt with different aspects of emotions and how these affect human voice in the previous module. Although the use of vocal effects has strong sociocultural origins that date far back in traditional musical practice, voice science has only lately specifically and methodically recorded the physiology of the sounds. Therefore, it has been demonstrated that Mongolian throat singing, also known as tuva, involves the ventricular folds' vibrations regulating the sound of the actual vocal folds at every second or third vocal fold closure (Lindestad et al., 2001).

Equivalently, studies of modern singing demonstrate that harsh vocal effects like Distortion, Growl, Grunt, and Rattle are mainly generated by the added engagement of particular supraglottic sound sources without conflicting with or delaying the phonation type at the glottis (Aaen et al., 2017; McGlashan et al., 2013). However, in various papers that I have read for this study, screaming and other extreme vocal productions are often referred to as phono traumatic and one of the main causes of vocal problems. Santa Maria et al., and Achey et al., for example refer to screaming as a phono traumatic behaviour that should be avoided in terms of vocal hygiene (Santa Maria et al., 2020; Achey et al., 2015).

Since 1991, specific methods for achieving these vocal effects have been created in the framework of the Complete Vocal Technique (CVT) method for training the voice, where detailed instructions are provided to help singers gain independent control over voicing type, sound colouring, and vocal effects. However, it is one thing to be able to produce the sounds and it is quite another to be able to do so without effort, while also being aware of the procedures to be followed in order to ensure voice safety.

Studies and essays on vocal health in music have significantly aided in raising awareness of the value of keeping good voice health. Many of these studies and publications have concentrated on various musical genres and their distinct vocal demands, but they have also acknowledged the significant vocal burden that teachers in general bear on a daily basis. Teachers have a risk of voice disorders that is roughly five times higher than nonteachers when compared to other vocal professionals (Mowraska & Niebudek-Bogusz, 2017; Devadas et al., 2016; Seifpanahi et al., 2016; Behlau et al., 2012; Munier & Kinsella, 2008). Studies on vocal health have also emphasized the best ways to maintain vocal health, such as warm-up and cool-down activities, water, and a healthy diet to name a few.

To enhance performance and ensure vocal endurance, vocal pedagogues, speech language medical professionals, and laryngologists frequently suggest vocal hygiene techniques like moderation in voice use and voice type, lowering stress levels, avoiding phonotraumatic behaviors like screaming or talking over crowds, and improved water intake and moisture control (Murry & Rosen, 2000; Timmermans et al., 2005; Behlau & Oliveira, 2009). These suggestions are supported by certain unbiased proof, such as studies that show a connection between greater laryngeal hydration and voice consistency (Sivasankar & Leydon, 2010) and vocal rest and better vocal condition (Chan & Yiu, 2003).

Important Vocal health components

Hydration

Long have researchers been intrigued by the topic of hydration and its connection to health. For decades, researchers from a variety of fields have examined how much and how little water affect how the body functions. The conclusion reached by these studies is that a fluid balance is necessary for the body to function at its best. The vocal folds' altered structure and function during shallow and systemic water intake challenges have been seen in voice production, indicating that proper vocal tract moisturisation is crucial for sound quality (Verdolini et al., 2002; Fujita et al., 2004). Drinking enough water has long been believed to enhance vocal quality and function (Van Wyk et al., 2017). Adequate hydration ensures that the mucous membranes within the mouth, throat and vocal folds remain lubricated and thus less susceptible to damage. Systemic water intake refers to having enough bodily water and fluid in the vocal fold tissue.

Secondary hydration involves having the vocal folds come into touch with humidified air. The recommended amount of water intake each day is 2 liters in order to ensure systemic water intake (Sataloff, 1997). Water is essential to people's health and general well-being. Its essential applications include those of a construction material and a dissolvent for chemical processes, a means of transporting vitamins, minerals, and waste, moisturiser, shock absorber and thermoregulator (Jequier & Constant, 2010). Each of the body's systems (the circulatory, breathing, digestive, hormone-related, immunological, lymphatic, muscle-bound, neurological, reproductive,

integumentary, bones, and urinary) depends heavily on water for proper operation, thus it must be replenished on a regular basis through dietary consumption and other fluids. However, there is conflicting information regarding impacts on the voice (Hartley & Thibeault, 2014). Hydration levels can impact vocal fold vibration patterns by physiologically reducing the fluid-like characteristics of the folds (Chan & Tayama, 2002)

Simply by drinking water is not enough to maintain vocal health. It is also important to avoid beverages that can dehydrate the body, such as alcohol and caffeine, as well as smoking and exposure to dry air. Dehydration can lead to a range of vocal problems, including hoarseness, sore throat and even vocal fold damage. These issues are particularly prevalent in those who use their voices professionally, such as singers, actors and public speakers among others (Franka et al., 2013). Dehydration damages the condition of the voice. It has been assumed that limiting coffee and alcohol is important for preventing water retention. Nevertheless, very few research examining the relationship between coffee and vocal quality exist, and none of them have discovered deteriorating vocal fold mechanics. On the contrary, alcohol has been found to have detrimental effects on laryngeal health through a variety of mechanisms, including dehydration, increased risk of gastroesophageal reflux disease, and other risk factors for laryngeal metaplasia and aggressive laryngeal cancer (Kim et al., 2019; Dosemeci et al., 1997; Zhang et al., 2008).

Staying hydrated has a big impact on the singer's voice. I have seen great results at students and colleagues that were feeling hoarse in the morning and needed to perform at night when they combined drinking water and vocal rest at the day of the live performance.

Vocal rest

Vocal rest is a crucial aspect of maintaining vocal health. The voice is an essential tool for communication, and it is necessary to take care of it to prevent damage or strain. Vocal rest involves abstaining from speaking or singing for a period of time to allow the vocal cords to heal and recover from any stress or injury. One of the most common causes of vocal strain is overuse. Singers of all genres, actors, teachers, and public speakers are all at risk of developing vocal problems due to excessive use of their voices. In such cases, taking a break from speaking or singing can help reduce inflammation and promote healing.

Another reason why vocal rest is important is that it helps prevent the development of nodules on the vocal folds. Nodules are small growths that form on the vocal folds due to repeated trauma or irritation. They can cause hoarseness, pain, and difficulty during speaking. Taking regular breaks from speaking or singing can help extreme voice professional and voice professionals in general to maintain good vocal health. It allows the voice to rest and recover from any strain or injury caused by overuse. By incorporating periods of vocal rest into our daily routines, we can ensure that our voices remain healthy for long periods of time.

I could not back up this piece of vocal rest with literature because I did not find any, only websites and the knowledge from my experience. The search for relevant information was performed on the PubMed, Google Scholar, ScienceDirect, Academia, ASHA website and on specialized publications but still I found no official material on vocal rest.

Warming up

The procedure

Warming up can be done in a variety of ways that can differ based on the warm-up leader or the requirements and preferences of the performer (Raphael & Sataloff, 2006). Warming up typically entails stretching and strengthening exercises, breathing drills, and creating voices and placement at various pitches, ranges, and volume degrees. Vocal instructors, conductors, and experts in vocal technique recommend a series of activities during warm-up to enhance singers' voices and advance their abilities (Williams, 2012). A warm-up should last between fifteen and thirty minutes, according to publications analysing the impact of warm-ups on the tone of singing voice. The warm-up can be completed one-on-one with no observation (each person chooses which exercises to perform and for how long), one-on-one with an instructor's guidance (the instructor chooses which exercises a specific person performs), or in groups with an instructor. Everyone normally does alike drills during a group warm-up with an instructor (Moorcroft & Kenny, 2012). The same procedure is followed by extreme singers with the difference that we sometimes do exercises with false vocal folds using small volumes in order to avoid constrictions. We also incorporate video games characters or animal sounds.

The literature

The research detailing the effect of warm ups on the quality of the singing voice is varied in many ways, and individual procedures (self-evaluation of the study participants) or objective techniques (e.g. applying audio analysis) are utilized. The studies also use various warm up techniques. It is challenging to compare these investigations as a result. The study (Pórolniczak & Kramarczyk, 2023) in which the survey participants performed a self-evaluation is an illustration of a subjective approach to the assessment of the impact of a warm up. The participants said that they thought their vocal quality had improved and that singing needed less effort. All singers who took part in the trial benefitted from the warm-up session, according to the researchers, who observed this (Sundberg et al., 1995). The writers also looked into the differences that vocalists and observers saw following vocal warming up. The tone character, psychophysiological elements, and proprioceptive feedback all saw considerable alterations. These investigations also discovered variations in the reactions of listeners and singers to singing before and after the warming up.

Warming up is crucial to the extreme singers and has a great impact on their performances. It also has an impact on extreme vocal teachers in order for them to be ready to teach powerful and aggressive sounds with ease, otherwise they will not be able to teach for many hours a day. It is the combination of course of all the components that has this effect and not just the warming up or the vocal rest or drinking water alone.

Literature on drugs and herbal medicine

Numerous studies have documented the usage of particular medications to manage voice changes (Justicz et al., 2016; Bonetta et al., 2016). In contrast, speech pathologists and otolaryngologists frequently administer drugs to patients in regular clinical voice practice that have unrecognized harmful impacts on voice. Additionally, these negative effects could have an impact on an individual's recommended course of treatment, underscoring the significance of comprehending how voice and medication interact. I was unable to locate any previously published research on the definite link between drug side effects and vocal problems in the field's particular material. However, a number of studies have looked at the indirect association between potential side effects of particular kinds of medications or drug components on the voice, larynx, and vocal tract (Nemr et al., 2017). The moisture content of mucous membranes is thought to be impacted by some medicines (Martin, 1997).

Herbal medicinal products are defined as pharmaceuticals that contain untreated dried or fresh, whole or dispersed therapeutic plants known as herbal drugs, or a variety of steps in the form of botanical extracts, essential oils, juices, and processed liquids obtained through processes such as pressing, separation, and detoxification (Titck, 2021). According to the World Health Organization, traditional herbal remedies alleviate the most common problems at a rate of 80%, particularly in underdeveloped nations. However, in some sectors of the community, herbal items are used in ways that are contrary to accepted medical procedures.

In relation to irritation and dehydration in the mucosa of the vocal folds and vocal tract, drugs and herbal preparations used by professional voice users for both acute and chronic health problems are relevant (Bock, 2019). Many studies have been conducted to explore the use of herbal products in different areas of population. However, we have not come across a study that evaluated the use of herbal medications to maintain vocal hygiene on a regular basis in elite voice users who depend on their voice in their everyday lives. Consuming lots of water, limiting coffee and tea intake, focusing on attention to sleep quality, keeping indoor humidity, minimizing lengthy periods of talking, limiting smoking and alcohol intake, and avoiding medications and procedures that limit the voice are all examples of vocal hygiene behaviors. According to the study's findings, there is no recommendation for the use of supplemental medications or herbal medicinal products to maintain vocal hygiene (Akgöl et al., 2022).

The Complete Vocal Technique study

Elongated analysis is a vital, yet frequently overlooked, part of vocal health. Continuous voice studies can track healthcare over an extended period of time, revealing any benefit resulting from sustained exercise rather than an immediate impact. Recurrent examinations are essential for recording the vocal well being of vocal athletes since much phonotrauma, such as vocal fold growths, generally results from continuous and repetitive usage rather than severe pressure. The majority of vocal health studies, however, lack access to ongoing and independent information, and if they do, the information provided is frequently based on singing undergraduate or training groups as part of the participants' university degrees, rather than skilled and performing populations, as it is challenging to constantly find experienced singers for studies of this kind (Aaen et al., 2022). Rough voice effects have been the subject of prior research, which suggests that the sounds can be generated in a healthy manner (Aaen et al., 2021; Guzman et al., 2019; Caffier et al., 2018). Yet, since these findings are not longterm in nature, they can only be viewed as momentary glimpses of vocal health. They cannot be interpreted as a statement on the durability and sustainability of the sounds.

In order to provide vocalists the flexibility of expression they need to perform, vocal professionals of all types of music, styles, and vocal demands must prioritize maintaining their voices. Although they have long been a feature of human expressiveness, rough vocal effects are a highly discussed issue in vocal education and a little-explored area in voice research (Aaen et al., 2021; Aaen et al., 2017; Guzman et al., 2019). This may be partially attributable to prejudice towards these sounds because they deliberately sound raspy and are very dissimilar to the style of western classical voice, an art form that has been discussed in voice literature quite extensively. Consequently, harsh vocalisations have sometimes been described as vocal abuse, despite the absence of scientific proof to back up the idea that rough vocalisations are indeed unhealthy. The study demonstrates that precise and regular narrowing of the larynx, hypopharynx, and lifting of the larynx to enable the vibrating supraglottic structures is not harmful to the well-being of the voice. It also demonstrates that although practicing and instructing rough vocal effects regularly over the fourteen year study period, singers who used extreme vocal effects strengthened their vocal health. Furthermore, the results are consistent with a growing body of research that emphasizes the importance of laryngeal and supraglottic shortening for optimal vocal development techniques, despite the fact that these gestures can also be signs of tension in the muscles hyper-functional vocal disorders (Del Rio et al., 2019; Saldias et al., 2019).

Finally, the study shows that extreme vocal effects, even if they may sound hurtful or raspy, are no more unhealthy than all other sounds, provided that they are performed with the right skill. A correct technique is essential for the vocal health of any sound, but it's particularly crucial for advanced methods like rough vocal effects where it's necessary to manage both the sound source and the vibratory pattern in one or more supraglottic structures. This study emphasizes that, like with any vocal demands, skill for all aspects of sound creation is essential to produce sounds regularly and throughout time.

Last words

The way I sourced for literature was by searching at all the above sites and other useful sources (PubMed, Google Scholar, ScienceDirect, Academia, ASHA, Journal of Voice, Vocal Health Education, How science works to name a few) and also using my books. The criteria for including or excluding material were devised in order to make the scope of the research more specific in involving singers and voice trainers. For example, when I discuss teachers and literary findings, I am mostly referring to singing teachers rather than teachers in general. In the drug and voice section, for instance, I removed literature that dealt with patients who had a vocal issue but were not professional singers or teachers.

There are limitations to the studies that I have researched but that does not make them necessarily less credible. The restrictions are primarily concerned with the exclusion of extreme sounds and extreme voice experts from the studies based on preconceived assumptions such as that excessive sounds are harmful to the voice and should be avoided, which is not true in my opinion as a professional. I am hopeful that additional research on the subject of extreme vocal techniques will begin to arise, providing more knowledge on physiology, anatomy, and vocal health.

At this point, I want to raise the question "Now what?". This question deals with the future of my research and my next steps. The whole research for vocal health for extreme voice professionals made me more aware of the idea that I need to incorporate various tools and tips for vocal health in my teaching studio. It will also be very beneficial for me as a performer. Extreme vocal effects is a growing field within vocal education and vocal performance and together with this, unavoidably comes vocal health for extreme vocal professionals. This study increased my awareness of the significance of understanding what I read. On voice health, there is a wealth of material, but I need to focus on a few key points in order for my goal to make sense. My research may seem elementary and rudimentary to a voice coach in the business, but from my own perspective, it has provided me the building blocks for my future research. In my initial investigation, I have uncovered a number of vocal health-related topics that might be expanded upon in a more in-depth project. Without the fundamental foundation, I think a research in this field cannot be accomplished or make sense.

Ideally, this study will serve as the foundation for the development of a vocal health protocol for extreme voice professionals. I will experiment with various combinations of warming up routines, straw phonation exercises, vocal rest and maybe different diet choices, forming short vocal routines for me and then work on some routines for my students and see what works best and if it works in the end. I will also add posture and stretching exercises, more breathing routines and try to combine all these elements in a more structured way. In order to recognize voice strain under extremely tight time schedules, I aim to be able to offer a practical tool to both myself and my pupils.

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