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Module **BMPF7013** Independent study

Title : Can mindfulness be effective for extreme vocalists? An investigation in various disciplines

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“Can mindfulness be effective for extreme vocalists? An investigation in various disciplines”

1. The portfolio

Introduction & Rationale

I have always been captivated by extreme vocalisations, especially in heavy metal music. I am now an extreme vocalist and an extreme metal vocal coach, teacher and aspiring researcher of extreme metal vocals. I teach a variety of genres but my focus lies within the extreme use of the voice and how to teach/perform them in a healthy manner. Since the beginning of this master's programme, one of my primary goals has been to conduct study on themes that are widely discussed in the field of voice and discover a way to connect such discussions to extreme vocals and heavy metal music. In my module 3 (BMPF 7008), I undertook a project investigating voice acting techniques for video games and whether they could be beneficial for extreme metal singers and coaches. The paper found that heavy metal music has become extremely popular in the last decade and metal coaches and vocalists are in greater demand than some years ago. However, the problem is that there is not enough literature available to support these new coaches. In fact there is no literature available for experienced coaches to turn to. There is a growing body of evidence that supports the advantages of mindfulness across many age groups, particularly in the areas of physical and mental well-being, as well as education.

During my research for this study, I will concentrate on whether mindfulness techniques can be beneficial for extreme metal singers and the existence of mindfulness in disciplines outside extreme metal music. Extreme metal vocalists frequently battle with various difficulties because of the severe demands on their vocal abilities as discussed and highlighted at a mutual masterclass by Cathrine Sadolin and Melissa Cross (Cross & Sadolin, 2019). Extreme metal vocal techniques like growling as described by Harrison and Watson : "Although not generally used in singing, there are certain extreme forms of vocalisation, such as growling where the false vocal folds are pressed against the true folds to create a low frequency vibration" (Harrison and Watson, 2020, p13, p69, p87). Shouting and guttural noises need an excessive amount of vocal fold activation, which can lead to voice loss and injury. Vocal health is important for professional voice users, who might be thought of as vocal athletes who rely on the general state and health of their instrument to educate and perform (Castelblanco et al., 2014).

To mitigate vocal health issues, my extreme vocal students might turn to mindfulness techniques which are widely promoting vocal health. They will frequently search the internet for a variety of facts connected to tension before getting in touch with me. For this purpose, problem solving and

techniques for release tension have become a large part of my teaching. However, as a metal singer this could contradict everything that we need to do due to the fact that a metal singer needs to be activated and mindfulness techniques are a great helping tool for relaxation and release.

Despite being an extreme voice professional myself, I occasionally encounter fatigue and overuse of my voice and need to discover ways to overcome this since a performance or lesson cannot be cancelled most of the times due to financial reasons that are connected to freelancing. A physical and mental strain may be added as a result of this. The connection between musician job stress and mental illness has been explained using a number of different, but related, theories of occupational stress. According to Karasek (1979) the job-demand-control (JDC) paradigm posits that elevated levels of mental and physical job demands, coupled with a lack of freedom or resources to effectively manage these demands, are linked to the manifestation of exhaustion, stress, sadness, and physical sickness symptoms. When these negative emotions are mixed with high levels of tension, there is a significant likelihood that a vocal problem will occur. When this occurs, the extreme voice professionals are provided with more general guidance regarding the health of the vocal apparatus. Frequently, the mindfulness approaches that I am implementing with my students, which have proven to be effective, are derived from other disciplines, including meditation and yoga. I want to explore these techniques from the aspect of an extreme metal singer and coach and whether “release” can be applicable to these professionals especially before a concert or when preparing for one.

But what is mindfulness?

Mindfulness is a rapidly expanding subject in the field of e-mental health, both within and outside of therapeutic practise. Mindfulness is a state of psychological freedom that develops when attention is peaceful and flexible without commitment to any certain viewpoint (Martin J. R., 1997). There have been numerous assertions regarding the benefits of mindfulness for mental health. An increase in mindfulness, according to proponents, is associated with improved self-control, objectivity, attention, ability to handle stress, and empathy (Young 1997; Grossman et al. 2004; Fulton 2005; Masicampo & Baumeister, 2007; Leary & Tate, 2007). All of the aforementioned things are necessary for the survival of every single human being. Having said that, given that my topic deals with extreme vocalists, I shall concentrate on them.

Does the extreme vocalists community need mindfulness?

Building on my assignment for module 3 (BMPF 7008), I found that the popularity of heavy metal music has increased significantly the last ten years due to the growth of video gaming companies among others. This had as a result the creation of more bands with extreme vocals touring around the world for long periods of time but also the need for extreme vocal coaches delivering both studio and tour advice. The health problems, both physical and psychological, that performers experience have many causes and take many forms. Mathmann et al. (2021) discussed about the influence that non-modifiable elements and health-related behaviours that can be changed have on

the occupational health of vocalists. Performing arts occupations are demanding and the daily pressure to perform perfectly, the spotlight, the continual competition, the haters, and traditional stage fear may all take a heavy toll (Sataloff ,2006). This can be even harder for metal vocalists due to the aggressiveness of the music that is traditionally there by nature. Very often extreme singers need more time to recover both mentally and physically due to the intensity of the performance. A vocal athlete needs to integrate various degrees of physical health, spanning from general well-being to an advanced level of vocal fitness, to be able to successfully meet market demands and performance high standards within an ambitious arena (LeBorgne & Rosenberg, 2018). This is because modern performers (both singers and actors) are subjected to a wide variety of vocal and physical demands. Although this is not written in an academic journal for voice, we can turn to the gaming industry where extreme voicing is extensively used. Mindfulness is a really helpful tool for the extreme performers to recover since it enables them to achieve a more calm state of mind.

Planned program of study

Aims :

- To thoroughly examine and comprehend the significance of mindfulness for professional extreme singers and teachers.
- To have a thorough understanding of mindfulness in relation to the most recent academic research.
- To reflect on my own strategies on mindfulness at both fields of teaching and performing
- 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 mindfulness for extreme singers and teachers.
- To evaluate the positive impact of mindfulness knowledge on my extreme voice students who often get very stressed prior to a live show.
- To review if the most recent studies on the subject of mindfulness can inspire fresh ideas for use in the studio/practise room/classroom by extreme voice professionals.

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

Methods & resources :

In order to collect information on mindfulness for singers, I will study academic journals and academic and scientific sites such as Journal of Voice, Journal of Singing, Researchgate, Sage, Lesley.edu, Academia.edu, Sciencedirect.com, Tandfonline.com. I will need to check grey literature as well due to the fact that there is not enough literature for extreme and metal vocalists. I will also study papers from other disciplines such as sports since mindfulness is connected to many different fields. I am aware that this is a very large project and therefore I will create a robust timescale.

Timescales

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

Goal	June	July 03.07	August 21.08	September 18.09	October 11.10 15.10	November 07.11
Finalise topic w tutor						
Aims & Objectives agreed						
Book research						
Review						
Draft					Live draft & Final draft	
Submission						

Literature review process

In order to draw out the themes that I will explore in part two, I will conduct a literature review. I need to think in a more creative manner to be able to develop a literature study that would fit in a relatively new topic such as mindfulness for extreme voice experts and its existence in different disciplines. Since there is not a lot of information on metal vocals, I will have to draw from data in other fields (such as ancient forms of singing and sports training) in order to come to a conclusion. In addition to this, I will have to make use of the grey literature. In an effort to be able to set up the themes revolving around mindfulness for extreme vocalists, I will need to revisit my previous assignments and check the most interesting issues and common questions that kept appearing so far, the limitations of these studies, possible recommendations and and find a way to connect them to my current study. It is vital to do this in order to be able to establish the themes that I will be analyzing in the next paragraphs. This discussion will focus on the comprehension of harsh vocals, their interrelation with other musical styles, and their association with spiritual practises beyond the realm of popular and heavy metal music. Examples of such practises include Mongolian throat singing and Pansori, as well as the incorporation of intensive physical exercise, meditation, and yoga.

Considering that I will be returning to the concept of mindfulness quite frequently in what follows, I find it useful to add at this point the definition of Baltzell and Summers on mindfulness. According to Baltzell and Summers (2016), the capacity and willingness to participate fully in the here and now, regardless of whether the experience is fascinating, happy, or fraught with physical, emotional, or social suffering, are both essential components of mindfulness. Maintaining one's capacity to focus on task-relevant stimuli, also known as concentration, and interacting with one's surroundings in a mainly smart manner from moment to moment are two of the most important aspects of being aware from a performance standpoint. Continuing with the same paper, when one is operating with mindfulness, they are able to withstand distractions, such as anxiety, attack, or a lack of interest to the extent that the given distraction does not disrupt the performer from being present to possibilities (internal and external) for maximum performance. This is beneficial for extreme singers in order to deliver their powerful performances. However, given the close relationship between mindfulness and meditation as well as other practises that are somewhat analogous to it, I feel that it may prove to be challenging for these singers if they really commit to the practise of relaxation. I will discuss these topics further at the written assignment.

Understanding extreme vocals from the literature

Although there is not so much existing literature specifically for extreme metal vocals, there have been a few isolated attempts made to perform an analysis of the voices used in heavy metal music over the course of the past two decades. Due to the fact that this is an academic investigation, I think it would be helpful to emphasise some facts that have been obtained from other scholarly articles. An investigation on distorted tones was carried out by Zangger-Borch et al. (2004), who discovered that there is a connection between the subglottal air pressure, the periodic vibration of the vocal folds, and the aperiodic vibration of the supraglottic mucosa. In the meantime, Sakakibara et al. (2004) examined vocal techniques, albeit they did so within the framework of ethnic and jazz singing. However, since these techniques are often used by vocalists of extreme metal music it makes this piece of research valuable for these professionals as well. Research into extreme vocal techniques was the focus of a ground-breaking experiment that Eckers et al. (2009) carried out in the laboratory with six death metal singers, one of the few occasions when death metal singers had the opportunity to be present in a laboratory for research purposes. Zangger-Borch and Sundberg (2011) identified the key qualities of rock singing as power, volume, and high intensity however, they did not expressly refer to heavy metal in their study. On the other hand, it is essential for research into metal-based music to have these experts investigate rock singing. Erbe (2014) investigated the various theories that might explain why people's imaginations connect the vocals of extreme metal bands with horror and inhumanity.

According to DiLorenzo et al. (2016) since its earliest releases in the 1970s, the musical phenomenon that is commonly referred to as Heavy Metal has spawned a multitude of diverse subgenres, many of which share characteristics of vocal anger and strength. The study goes on to posit that pop and rock vocal styles have influenced components of extreme heavy metal's production of sounds and singing (DiLorenzo et al., 2016). Extreme heavy metal vocals, in general, involve aspects of aggressiveness as well as such extreme loudness that these sounds lose the ordinary characteristics of the human voice and, as a result, purposely take on the vocal image of a monster or an animal (Izdebski et al., 2016). Given that this monster or beast voice is connected to the teaching and performing of extreme vocals and because it is a vital aspect of hardcore and deathcore, it is crucial that some research has been done on the subject.

Tsai et al. (2009) explain that growls are often low-pitched, harsh sounds that animals make. The term growl refers to these sounds. Growling sounds can be heard occasionally coming from humans who are experiencing extreme emotions. Growl-like noises are typically used to indicate fury and enthusiasm that is linked with violence and these elements are strongly connected to the nature of extreme vocals. In the same research paper it is pointed out that a discovery was made on a substantial positive association between the activity of the abdominal muscles linked with creating voice and the perceived aggressiveness intensity of the speaker's tone of voice (Tsai et al., 2009). This is yet another piece of evidence that establishes a connection between strenuous

physical activity and an aggressive voice, and it makes me question whether or not practising mindfulness could have a beneficial effect on the extreme vocalists.

In another paper on video games done by Cazden, it is stated that actors who provide their voices for the "Action," "Shooter," and "Fighting" genres of video games have lately emerged as a new vocational category that has been a rising worry for the community that focuses on voice care. In various of these video games, characters regularly experience or inflict physical violence on others hence, the actors who portray these characters are required to repeatedly vocalise great effort, risk or suffering as they play out their roles (Cazden, 2017). This is similar but also different to extreme metal singing because as performers we need to communicate to our audience that there is a constant effort to vocalise and a feeling of suffering. However this should remain an artistic choice for us as performers and not a huge vocal effort in reality. Actors are forced to work periods that last anywhere from two and a half to four hours long, during which they must yell out commands, scream, snarl, grunt, and perform other vocalisations (Reid et al., 2022). This can be comparable to extreme metal singing because although we do not have specific scenes to act like the voice actors do, we do have short bursts of shows like forty five minutes sets which might be similar.

The most important thing for my practise is how we can relate this information with mindfulness when there is such a strong correlation between extremely loud singing and intense physical engagement. Putting this physical activity of the body to the side, there is also a relationship between this form of vocalisation and negative emotions, which makes this task much more difficult.

Where to search for extreme vocals?

Ancient traditions

Singing, which is the vocal creation of musical tones, is such a fundamental part of the human experience that its roots have been lost to the mists of time and predate the development of spoken language. In the previous modules I have investigated the physiology of extreme vocals, the science, and the mechanism that lies behind a healthy creation of these sounds. I have found that there is a number of factors that can affect the quality of these sounds. Even the development of vocal fry into fry scream (Cross, 2004) and the rise of popularity of extreme metal music have been briefly discussed here. But up until this point, I have not talked about where they came from and how they have developed through the lens of a variety of different civilizations. The insight that the majority of ancient practises involve some form of singing (distorted or not) to convey a variety of feelings or even to establish a connection with god, nature, or one's own inner self is the motivation behind the relationship between these two themes.

There is not a single human society, regardless of how distant or isolated it is, that does not engage in singing. This lends credence to the theory that the human voice was the first musical instrument. Singing is not only an ancient and global practise, but it also serves a significant function in the civilizations of our ancestors. According to Koopman (1999), this function has less to do with entertainment and more to do with issues that are vital to the individual, the social group, or religion. Primitive man uses music to honour his rites of passage with chants and songs, to summon his gods with prayers and incantations, to narrate his history and heroism via ballads and epics, and to celebrate his rites of passage with chants and songs. Even today, there are still communities all over the world who hold singing in such high respect that their origin myths describe how they came to be through the power of song (Koopman, 1999). The association between mindfulness and religion has frequently been observed, since individuals commonly perceive religion as a source of solace. That is how I will connect mindfulness with traditional singing styles.

The following is a list of some of the traditional singing styles that make use of distorted singing. These are some of the themes that I will explore In the second half of this research:

- Mongolian Throat singing
- Sardinian Throat singing
- Pansori singing

Ethical considerations

Due to the fact that I am researching practises in non-western cultures, I am aware that there may be certain ethical considerations that need to be taken into mind. It is crucial to address these themes with respect for the people and the ideas that they hold because these practises frequently have deep roots in the cultural, religious, and historical traditions of the people who practise them. Due to the fact that I am conducting research that in some way ties spiritual practises with extreme metal vocals, which may seem like an unexpected mix, I intend to be aware not to appropriate pieces of another culture without understanding the significance of those elements.

Where to search for intense body activity?

Vocal Athletes

According to LeBorgne & Rosenberg (2018) even the most fundamental phonatory activities demand a mix of muscular strength and the coordination of numerous body systems since producing one's voice is a form of physical activity just like any other. Think about the complicated

mental, bodily, and vocal motions that are necessary for high-level singing in any genre. All forms of singing, despite the physiological distinctions in how they are generated, demand stable, strong muscles that perform in a coordinated and efficient way in order to achieve maximal output with a minimum risk of harm.

Performing extreme vocal effects and metal vocals demands good physical condition and an efficient coordination of the pressure of the vocal folds and volume. Extreme singers are considered to be vocal athletes. LeBorgne & Rosenberg (2018) proposed that vocal athletes are persons that experience high levels of vocal demand, which is necessary for meeting industry needs and performance expectations within a competitive atmosphere. This is quite comparable to the experiences of extreme vocalists due to the fact that they, too, are subjected to high levels of vocal demand, which is required for the purpose of satisfying performance standards in an environment that is very competitive, such as the metal industry.

Similar to how professional athletes rely on coaches and trainers to apply exercise physiology concepts for the purpose of optimising performance and reducing the risk of injury, vocal athletes must also take into account the need of incorporating warm-up routines, cooldowns, and strengthening exercises in order to promote the longevity of their careers and maintain vocal health. As before, this is quite similar to the situation with the extreme vocalists since they, too, have to combine routines to warm up and cool down as well as workouts to strengthen their voices in order to maintain good health for their instrument. Hence, it is vital for voice pathologists, singing voice teachers, and voice pedagogues to possess knowledge and acknowledge the significance of exercise physiology concepts in relation to the evaluation, treatment, and, in certain instances, training of vocal athletes (LeBorgne & Rosenberg, 2018).

Methods that promote mindfulness

The primary emphasis of this discussion will be directed towards conventional singing styles that facilitate mindfulness through spiritual practises, and the potential correlations that can be established between these practises and extreme vocal approaches. However, it is important to note that a brief review of meditation, breathing exercises, and yoga will also be included.

Meditation

The term meditation refers to emotional and introspective practises that are found in a variety of cultural systems, including Christianity, Judaism, and Islam, despite the fact that it is most commonly linked with Eastern cultures and traditions. According to Hassed (1996) the practise of meditation is considered by a significant number of academics to have the potential to be one of the most effective methods for reducing stress. There are a lot of different ways to meditate, and they range in difficulty from highly regimented practises to more open-ended suggestions. It is believed that regular meditation practise can assist in the formation of unconscious habits and

microbehaviors, which, when combined with other factors, may have a multiplicity of beneficial impacts on the physiological and psychological functioning of an individual. Even just fifteen minutes, twice a day, of meditation has been demonstrated to bring about favourable outcomes (Achterberg, 1992). Mindfulness is very often linked to meditation amongst other techniques. According to Goleman (1988), mindful meditation is one of the two types of contemplative activity that have historically been identified, the other type being concentrative meditation. As we will see at the written assignment, there is still some discussion about whether or not doing mindful meditation might occasionally provide risks for the individual doing the practise.

Breathing

The act of breathing is intrinsically connected to the functioning of the mind. In the ancient eastern tradition, the act of breathing is an essential component of the majority of contemplative practises, and it is seen as a critical component for attaining the meditative state of awareness. It is referred to as Prana, which is a Sanskrit word that signifies both breath and energy (Zaccaro et al., 2018). More recently, techniques of breath-based meditation, which are a significant component of standard Eastern practises, have been so called "Westernised" and are commonly prescribed for greater health and well-being. This is because these approaches have been shown to improve both mental and physical health (Brown et al., 2005). Techniques of meditation that are centred on the breath typically involve the practitioner engaging in rhythmic breathing in order to help them achieve a state of mind that is both intensely meditative and relaxed. In the written assignment I will investigate whether it is useful for vocalists in extreme metal bands to execute these tactics before a gig, for instance, or after a powerful performance.

Yoga

Yoga, which has a history that dates back more than three thousand years, is currently considered in the Western world as an all-encompassing method for achieving and maintaining good health. According to Williams et al. (2003) the National Institutes of Health recognise yoga as a type of complementary and alternative medicine. Additionally Collins (1998) and McCall (2007) state that yoga also fosters the development of more sociable, compassionate, and self-controlled personality traits. There are many parallels between singing and yoga and that is the reason why yoga is a very popular practice among singers of various genres. According to Carman (2012) both yoga and singing require mastery of a physically capable body that has been trained to be both free-flowing and durable. Both are built on the principles of awareness, self-control, and making use of the breath. Both require one to be able to focus their attention and be able to coordinate their actions with their bodies. I hold a firm belief that this correlates precisely with the goals pursued by vocalists in the extreme metal genre. Regular practise of yoga cultivates a sense of calmness and well-being in addition to physical attributes such as strength, endurance, and flexibility. These components are essential not only for vocalists who perform extreme metal vocals but also for singers who perform in other genres.

CRITICAL REFLECTION

When I first started doing research for this independent study, I was well aware of the challenging nature of the subject I was going to be investigating. The most challenging aspect of my MA experience to date has been searching for scholarly literature on extreme metal vocals and extreme vocal effects. And this went another step farther since I attempted to draw a connection between two totally unrelated topics, namely heavy metal vocals and mindfulness. My first inquiry concerned the potential benefits of mindfulness for extreme metal vocalists and whether or not it would be advantageous for them given that mindfulness encourages a more relaxed body and mind, but extreme metal vocals require things to be performed at a higher level of intensity. But as it turned out, there was a really large project that was above my capabilities. My research question went through many iterations until I settled on the one that will serve as the basis for my dissertation. But in the end, this required a lot of effort and quite a few alterations to the text in order for me to be able to connect everything that I had in my head in a way that would make sense to the reader. I was blown away by how much knowledge there was to find on so many different topics. It made me feel completely overwhelmed.

In order to make sense of the data I was collecting, I made an effort to maintain my concentration on the basic study objectives I had set for myself. I conducted an exhaustive search for relevant books, journals, essays, and websites in the hope of locating individuals who have made significant contributions to the field of mindfulness for extreme singers and teachers. However, I was only able to find information on mindfulness for singers, teachers, students, and other individuals. In any event, I have a better understanding of what is currently available. I also had the opportunity to examine the beneficial effects of mindfulness on my extreme voice students, who are frequently experiencing high levels of stress right before a performance. Due to the fact that I was expanding my expertise on a variety of mindfulness practises, I was interested in seeing whether or not they would have a tangible impact on the pupils I teach. It just so happened that two of them were performing live, which made it easy for me to observe the positive impact of the techniques on them. I also have so many ideas on how to realistically use new approaches involving mindfulness in the studio, practise room, or classroom by extreme vocal pros. This is beneficial for me as a teacher since I am extending both my knowledge and the amount of fresh material that I present to my students.

I made sense of the facts that I was reading by applying Gibb's reflective model (1988), which took into account both the data and the experience that I already had. In an effort to maintain some kind of order within both the readings and my own thoughts, I made an effort to follow the six steps of the reflective cycle. As a direct result of this, I improved in my capacity to differentiate between things that I knew and those that I did not know. Given that I had a recurrent programme with my pupils as well as with my rehearsals and live performances, I felt that it was appropriate for me to go through these experiences. Initially, Gibbs advocated employing the model in recurring settings.

It would be the first time that I attempted to practise mindfulness techniques during one of my classes. In addition to this, I was able to use it with brand-new clients who wanted individual sessions to address specific issues as a stand-alone experience. As I gained knowledge from both my own experiences and the works of literature, I took notes in notebooks so that I could apply it in my classes and in my private practise. In parallel with this, I started researching the literature and think about whether or not my methods might be improved. In result I taped some of my lessons that were specifically designed for my extreme metal vocalists who were due to have a live performance in a few days. According to Bisson (2017), the practitioner should not let themselves become disheartened by defects in application that may come to light during this process of contemplation on action rather the practitioner should embrace this as a characteristic of the road towards being a good practitioner.

My decision to broaden the scope of my information gathering began at a particular point in time, and it continued after that. I started by reading about the application of mindfulness techniques in a variety of contexts, such as classrooms and educational institutions of music and non-music schools and universities, as well as choirs featuring both vocalists and instrumentalists. That helped me in locating additional data, which in turn led me to fresh scholarly research. I started to feel more assured about the study and what I could learn from going through the process, but at the same time, I was concerned about whether or not I would be able to connect, in the end, my two primary areas of focus that are unconnected. I had some concerns about the timeline of the project. Due to the fact that it occurred during a particularly demanding period at work for me, it required effective time management. My high level of stress was attributed to my busy job schedule, which included additional studio recording sessions and a trip overseas to teach extreme metal vocals at two different conservatories. This trip contributed to my high level of stress. Not only was this kind of research challenging because of the volume of material that needed to be read, but it was also difficult since I had to modify my primary research question on a near-constant basis in order to make head or tail of the information that I gathered..

Did I find the methodology productive?

As a result of the kind of research being conducted, I still have some questions on this matter. Surprisingly, both the data collection and the study of the relevant literature regarding mindfulness in a variety of fields turned out to be more impromptu than I had anticipated. Keeping track of my studies was a lot easier thanks to Gibbs' approach, which gave me reason to be optimistic about the last module. As part of my efforts to learn more about mindfulness, I attempted to:

-Explain in detail what it was that I expected of my students in light of what I had read (Description).

-Analyse the thoughts I was experiencing at the time I was having my first experience of mindfulness in the studio and consider how those thoughts might have influenced my experience (Feelings).

-Analyse what aspects of the lesson were successful and what aspects were not (Evaluation).

-Explain what went on during the session as well as the time leading up to the actual performance (Analysis).

-Describe the concepts I have learnt and the things I can do more effectively moving future (Conclusions).

-What adjustments would I make moving forward? (Action plan).

2. Written Assignment

“Can mindfulness be effective for extreme vocalists? An investigation in various disciplines”

With a focus on extreme metal singers, this independent study will investigate and take into account the existing literature on mindfulness and whether it can be beneficial for them. Extreme metal singers are renowned for their ability to make powerful, frequently guttural sounds that are a crucial component of the music they produce.

There are specific things that need to be present in order to be able to provide a powerful performance, such as being in good physical shape, having proper vocal technique and emotion. These components incorporate the essential requirements for achieving success as a singer and performer. The difference with extreme vocalists is the level of physical power they need to engage in their performance. Although the amount of power required varies according to the extreme technique being performed, in most cases there is a greater emphasis placed on physical strength than is typical. This study will investigate the topic of mindfulness in the context of extreme metal singers and will give actionable ways to alleviate stress and tension not just before or after a performance but also during rehearsing or preparing for an audition.

At this juncture, I hold the belief that it would be beneficial to provide some fundamental data concerning the background of the natural setting in which extreme vocals are now situated. According to Metal Injection, one of the most popular sites for heavy metal music, extreme metal is a subgenre of heavy metal that draws its musical inspiration from a number of different heavy metal subgenres, including black metal, death metal, and thrash metal, amongst others (Andrew, 2015). The use of vocals that are shrill, guttural, and often almost incomprehensible is one of the characteristics that set extreme metal apart from other heavy metal subgenres. Extreme metal

vocalists employ a wide variety of techniques, including growling, screaming, grunting, and shrieking, to produce the genre's signature sound. Despite the fact that these effects can be performed in a safe manner (Aaen et al.2021) there has not been a lot of research done on the subject yet, and people are frequently suspicious of it, even if extreme vocal effects are not something brand new or used only in the heavy metal music either. They exist in various music genres such as pop, rock, blues, gospel etc.

Finding Mindfulness

Singing is a complete and all-encompassing activity that incorporates all aspects of life. It refers to music that is created and experienced in the most personal manner possible. In the same way, mindfulness is a comprehensive practise that broadens one's consciousness on a moment-to-moment basis, assists with the management of fear, tension, and anxiety, and provides the practitioner with a fresh perspective on the world around him (Czajkowski & Greasley, 2015).

Mindfulness can be defined as a psychological state characterised by the absence of attachment to any certain perspective, wherein attention is maintained in a calm and flexible manner (Martin, 1997). Numerous assertions have been put up on the effectiveness of mindfulness in promoting mental well-being. Proponents contend that there exists a positive correlation between heightened mindfulness and enhanced self-control (Masicampo et al., 2007), objectivity (Leary & Tate, 2007), concentration (Young, 1997), ability to cope with stress (Grossman et al., 2004) and empathy (Fulton, 2005). Kabat-Zinn (1990) developed a course on mindfulness-based stress reduction that taught participants a number of strategies to build mindfulness. These approaches included attention-focus activities, body scans, breathing exercises, and yoga-based exercises. These exercises are designed to help us develop a greater awareness of ourselves specifically, we will learn to pay attention to the way in which our minds actually function, as well as to what is truly taking place in our bodies and how we are feeling at any given moment. And although these approaches were initially made for the general population, in time and as the entertainment industry started to grow rapidly, they started being widely applied by actors, popular singers and of course extreme metal singers. As we speak, there is yoga for singers, breathing for singing and so on. The reason for these emerging fields is the stress that lies within this demanding profession.

The life of a professional musician is one that is filled with a significant amount of pressure. According to Czajkowski and Greasley (2015), there is a need for research that investigates how mindfulness might support professional musicians in coping with the pressures and strains that are associated with the job. Musicians require assistance in order to better manage their nerves, avoid and treat injuries caused by repetitive strain, and increase their levels of creative energy while performing. Support is crucial for professional musicians in mitigating the problems associated with their work, while simultaneously fostering an environment that promotes their functioning and facilitates optimal performance.

Numerous research have been carried out to investigate how practising mindfulness might assist in the alleviation of pain and the improvement of one's quality of life. Goleman and Davidson (2017) came to the conclusion after doing a comprehensive review of previously published studies on mindfulness that it is possible for mindfulness to reduce feelings of anxiety, tension, and pain. They argued that the practise of mindfulness has been shown to enhance emotional regulation, increase attention management, and shorten the amount of time needed to recover from the negative effects of stress. Practising mindfulness has been demonstrated to not only assist reduce negative self-talk but also improve concentration, compassion, quality of sleep, and overall bodily awareness (Goleman & Davidson, 2017).

Professional adult musicians encounter a multitude of obstacles, such as stress, injury, travel difficulties, concentration issues, and competitiveness, that might impede their ability to deliver optimal performances. A study conducted by Nedelcut, Leucuta, and Dumitrascu in 2018 examined the impact of lifestyle and psychosocial factors on musicians. The findings of this study revealed that musicians frequently experience difficulties related to sleep, anxiety, eating habits, and being away from their place of residence. Oyan (2006) observed in her Doctor of Musical Arts dissertation that music performance anxiety (MPA) has the potential to elicit physiological tension, panic, terror, cardiac palpitations, and impaired concentration. Gembris et al. (2018) conducted a study with a sample of 2,536 musicians, whereby they found that alongside stage anxiety, orchestral musicians frequently experience hearing difficulties and musculoskeletal issues. The persistent demand for high performance has the potential to elicit Maladaptive Perfectionism Anxiety (MPA) (Gembris et al. 2018), which can subsequently lead to a decline in performance. When it comes to extreme metal vocalists, the same anxiety is present, but on top of everything else, there is the added stress aspect of fearing that one would lose their voice while they are performing on stage.

While there is a lack of study specifically examining the effects of mindfulness on vocalists, existing studies in related disciplines indicate that using mindfulness techniques could provide significant advantages. The research results of Farb et al. (2013) regarding heightened sensory acuity and interception in the mindfulness group may provide an explanation for the assertion made by Fruzzetti and Erikson (2009) that increased awareness of bodily sensations and breathing, as cultivated through mindfulness practises, can enhance the acquisition of new skills. This may be of particular benefit to singers, for whom proper breathing and awareness of their micromuscles are essential to the development and maintenance of good vocal technique. There has not been a specific study yet on extreme metal vocalists, but they fall into the general category of singers.

Different spots to find extreme vocal outside heavy metal

I have always been fascinated by the fact that different cultures and religions at different parts of the world and at different time frames would incorporate some kind of distorted singing in their story telling. As a point of reference, according to Tsai (2005), the growl voice of the jing part in Chinese opera is meant to portray the extroverted and impetuous personality of the character. Sakakibara et al. (2004) have observed that in Japanese theatre, specifically Noh performances, the vocalisation technique employed by percussionists, referred to as kakegoe, often include a growling sound at the initiation of phonation. Apart from Chinese opera and Japanese theatre, there are traditional singing styles that are connected to spiritual practises, use mindfulness and also have some vocal techniques that we might compare to extreme vocals in the western world. There exists a multitude of vocal traditions, rendering it impossible to comprehensively investigate each one. Consequently, this study will focus exclusively on three specific vocal practises: Mongolian throat singing, Sardinian throat singing, and Pansori singing.

Mongolian Throat singing

Mongol-Tuvan throat singing, characterised by its primary method referred to as Khoomei, is a vocal style that is prevalent among individuals residing in the regions of Tuva and Mongolia. There are a variety of approaches to classifying the numerous techniques and styles of throat singing, some of which are more straightforward than others. The various clans and villages each have their own unique set of skills and tactics. Due to the predominance of animism in Tuva culture, throat singing is employed as a means of communication with the environment, fauna, and birds. Additionally, there is a belief that throat singing can be utilised to forecast the weather, manipulate seasonal movement, and influence animal behaviour (Pegg, 2002).

The classification can be boiled down to just three distinct methods at its most basic level. Kargyraa, Sygyt and Khoomei are their respective names and they are strongly connected to spiritual practises. According to Tuvan cultural beliefs, Kargyraa is employed as a means of communication with the spirits residing in the Lower World (Matrenitsky & Friedman, 2012). It has become popular among extreme metal vocalists and is the technique that produces the most bass sound since it lowers the usual singing voice by one octave than it would normally be sung at. This characteristic makes it a highly practical tool, particularly when it comes to low death metal vocals thus, it is frequently instructed as a method to identify the scream's initial sound. Sygyt is the one whose pitch is the highest, producing a sound that is quite similar to a whistle and has been used by singers in the extreme metal world especially those practising fry screaming. Culturally, contrary to Kargyraa, Sygyt has been linked with the spirits of the Upper World (Matrenitsky & Friedman, 2012). Khoomei is the most fundamental of the three techniques, and its character falls somewhere in the middle of that of the other two styles. These three individuals make up the group known as Khoomei (Oberg, 2008).

Scientific research has examined the physical manifestations associated with throat singing of this nature. These manifestations have been described as positive shifts in self-perception and distinct transpersonal phenomena, such as transcendence over physical limitations, expansion of mental boundaries, and images of light (Matrenitsky & Friedman, 2012). Nikolay Oorzhak, one of the most influential figures in the history of Tuvan music, is credited with developing the "Un-Hun System," which is a method of instruction and healing that was inspired by the energies that were felt as a result of throat singing. This Un-Hun shamanic study makes use of Tuvan throat singing to learn how to use one's internal energy to achieve things like opening one's heart, developing a spirituality, making one's heart better, and increasing one's lifespan.

These ideas are closely related to the practise of mindfulness. While the term "mindfulness" is commonly associated with more casual endeavours like yoga and breathing, I contend that throat singing, when performed in a spiritual manner, could serve as a mindfulness technique for extreme metal vocalists.

Sardinian Throat singing

I was taken aback to find that documentation regarding this particular manner of traditional singing is scarce, even in the so-called grey literature. According to web site Atlas Obscura, there is a surprising type of music that is only played on one island in the Mediterranean, and the vast majority of the rest of the world is completely unfamiliar with it. Because describing music typically ends up as a succession of analogies to other music, here is what that style, cantu a tenore, conjures up: one part barbershop quartet, one part traditional Mongolian drone, one part political punk and one part pub band. It is also an example of a peculiar vocal approach, one that practically doubles as a wild anatomical experiment, and it may be found in various parts of the world. Cantu a tenore is the traditional form of throat singing in Sardinia. The Cantu a tenore is characterised by a relatively inflexible structure and its performance is solely a cappella. The song is consistently performed in the Sardinian language, without any rendition in the Italian language.

According to another paper by Antonaci et al. (2013), the Cantu a Tenore is a polyphonic singing style consisting of four parts. The ensemble comprises four singers who assume distinct roles: a soloist, known as the "boghe," who vocalises the poetic text, and a three-part accompanying choir consisting of "su bassu," "sa contra," and "su mesu boghe," which provide harmonic support to the soloist through the use of nonsensical syllables. The Cantu a Tenore, up to now, has primarily been passed by oral tradition, devoid of strict frameworks, recorded notations, or predetermined melodic structures.

The vibration of the vestibular folds can be achieved with or without concurrent vibration of the vocal cords. According to Giovanni Bortoluzzi, co-founder of the Sherden Overtone Singing School, engaging simply the false folds in singing does not qualify as throat singing. Bortoluzzi, along with Ilaria Orefice, operates the aforementioned institution, which is recognised as the inaugural and potentially alone establishment dedicated to Sardinian throat singing globally. The outcome is a

vocalisation characterised by a low-pitched, guttural sound, reminiscent of specific subgenres within the heavy metal music genre. The vocal technique commonly observed in death metal, also known as monster voice, is prevalent in this genre. However, when one is capable of producing sound or speech by utilising their normal vocal folds in conjunction with the vibration of their vestibular folds, a remarkable outcome occurs: self-harmonization. The vestibular folds exhibit vibratory patterns at a frequency that is one octave lower than the pitch produced during vocalisation. This action is basically the same as the Mongolian throat singing that is mentioned above and this is what gives the distinct sound. The observed variation in pitch remains constant, and even individuals with extensive expertise in throat singing are unable to modify it.

Upon first thought, I hypothesised the possibility of identifying shared spiritual elements between Mongolian and Sardinian Throat singing, with the aim of supporting the potential utilisation of Sardinian Throat singing as a mindfulness technique for extreme metal vocalists, similar to the practise of Mongolian singing. However, the scarcity of available material regarding Sardinian Throat singing renders this task unattainable. The sole linkage between these two practises lies in their shared utilisation of throat singing, however it should be noted that the Sardinian variant does not employ this vocal technique as a means of communication with spirits or animals. It was, nonetheless, intriguing to discover this.

Pansori singing

Pansori is a form of traditional theatrical art that is believed to have originated in Korea during the mid-eighteenth century. In the year 1964, the Ministry of Culture in Korea officially recognised pansori as an Intangible Cultural Asset. According to Mecorio et al. (2021) described by certain academics as a form of narrative performance similar to a one-person opera or solo-singer, this traditional art form features a solo vocalist who is accompanied by a drum known as a puk. The vocalist employs a combination of spoken passages, referred to as aniri, and sung passages, known as chang, to recount folktales. In this performance, the vocalist assumes the roles of both the narrator and all the characters within the story. The initial repertoire of pansori encompassed a total of twelve compositions, although solely five of these works have been transmitted to modern-day practitioners. A typical pansori performance has a duration of up to eight hours and was traditionally conducted mostly in open-air settings, such as parks or courtyards (Mecorio et al., 2021).

The discovery of this particular vocal technique was made during the 11th Estill Symposium in 2023. Consequently, its inclusion in this research study was considered appropriate owing to its demanding vocal characteristics. The ability to sustain a healthy voice system while performing for eight consecutive hours is a subject that I find both intriguing and challenging. A great number of research have focused on aesthetic and vocal concerns connected to pansori and this is due to the distinctive vocal technique that is used. According to Mecorio et al. (2021), despite the fact that a

number of studies have shed light on the way in which pansori has progressed in terms of its expressive potential, it is generally accepted as a given that the conventional vocal requirements of pansori are still applicable. Beyond the conventional necessities of the pansori singers' education, very little consideration has been paid to the significance of vocal quality and health for performances. It is well known that harming one's voice by overusing certain sounds, such as those used in pansori, can eventually lead to permanent vocal impairment. To become a pansori singer, one must, nevertheless, in the opinion of the majority of people, simply fulfil this prerequisite (Moon, 1996; Hong, 1996, 2011; Hong et al., 2006). This can be similar to old fashioned thinking concerning extreme metal vocals where one would believe that in order to be a successful metal singer, the voice should be physically hurt.

The production of the sounds that constitute the aesthetic appeal of pansori requires what Westerners might associate with vocal aggression. Nelson et al. (1997) assert that during rehearsals and performances, actors commonly partake in emotionally intense actions, often resulting in vocalisations accompanied by significant physical exertion, such as staged fights, as well as abrupt emotional outbursts like screaming, shouting, grunting, groaning, and sobbing. The observed vocal behaviours characterised by heightened pitch and volume, heightened muscular tension in the area surrounding the larynx, and forceful release of air through partially closed vocal folds. These behaviours are commonly acknowledged as instances of vocal abuse, which can potentially lead to damage to the vocal fold mucosa and alterations in voice quality. Again, extreme metal vocals have been many times linked to vocal abuse mostly because of the perceived sound as harmful and not because there was research to back up this idea (Aaen, 2021).

According to Viel (2001), in order to comprehend the rhythmic and melodic traditions, students significantly depend on their instructor, who performs vocal repetitions after the master for the majority of the lesson. Throughout the lesson, there is minimal student engagement in discussions regarding vocal training techniques or inquiries pertaining to methods of producing respiration and sound. Students must develop their visual and auditory perceptions regarding the details of respiration and sound production through observation and imitation of their instructor's performances. The majority of successful pansori pupils have thus developed an acute awareness of their own breath and sound production. I would like to highlight the primary distinction and parallel between pansori and extreme metal singing at this point. In contrast to pansori students, we devote considerable time in class to discussing vocal technique. In certain circumstances, the pupil may attempt to identify the sound by imitating the instructor's tone, however, this is not as rigorous as in pansori.

The information that I have gathered regarding pansori primarily associates it with rigorous vocal technique rather than spiritual or therapeutic practises. The same holds true for extreme metal vocals and therefore we may be able to gather some informative data regarding on how to better preserve the extreme noises. Nevertheless, I have come across a form of music therapy known as creative pansori, which has been specifically developed for individuals undergoing treatment for depression. Clinical methodology was developed by music therapist Hyunju Kim that incorporated

specific verbal and non-verbal interactions, the counselor's percussion, and the patient's self-expressive storytelling (Kim & Mastnak, 2015). Although very limited research is available for creative pangsori, it seems to be promoting artistic expression, creativity and self healing. While these approaches may not be traditionally classified as mindfulness practises, they can still aid individuals in enhancing their focus on the present moment, aligning with the core principles of mindfulness.

CONCLUSION

At this juncture, I would like to pose the following question: "Now what?" This question pertains to the trajectory of my research as well as the conclusion of my project. The entirety of the study on mindfulness for extreme voice professionals brought to my attention the concept that I should add a variety of tools and pointers into my teaching studio. I am now more conscious of this necessity. It will also be of great use to me as a performer in many different ways. My prior awareness of how important it is to comprehend what I read was expanded as a result of this study. There is a multitude of information available about mindfulness, but in order for my aim to make sense, I need to zero in on a few important things and concentrate on those. I have identified a number of issues connected to mindfulness that have the potential to be worked upon in a project that is more in-depth. If the scope of this job had been smaller, I would have been able to provide more specifics.

Ideally, this study will lay the groundwork for further investigation into the topic of mindfulness and how it relates to extreme metal singers. The fact that all of these practises are tied in some way to the idea of "being present" is something that fascinates me, and as a result, I would like to learn more about ancient traditions, as well as breathing exercises, yoga, and meditation. I would also like to experiment with my teaching methods by incorporating other mindfulness techniques, and I would also like to try those methods out on myself either before or after being exposed to a live situation in order to see whether or not they minimise the amount of stress that I experience. Perhaps incorporating them into my warm-up routines, as well as the exercises I do for my posture and stretching. My goal is to be able to offer a useful tool to both myself and my students so that we can identify signs of voice strain even when working under greatly condensed time constraints.

REFERENCES

Aaen, M. *et al.* (2021) *Extreme Vocal Effects Distortion, Growl, Grunt, Rattle, and Creaking as Measured by Electroglottography and Acoustics in 32 Healthy Professional Singers*

Achterberg J. Mind body interventions, meditation. In: Berman B. *Alternative medicine, expanding medical horizons*. Washington DC: Office of Alternative Medicine, National Institute of Health, 1992.

Agte VV, Jahagirdar MU, Tarwadi KV. The effects of Sudarshan Kriya Yoga on some physiological and biochemical parameters in mild hypertensive patients. *Indian J Physiol Pharmacol.* 2011;55:183–187. [[PubMed](#)] [[Google Scholar](#)]

Agte VV. Sudarshan Kriya Yoga for Improving Antioxidant Status and Reducing Anxiety in Adults. *Alternative and Complementary Therapies.* 2008;14:96–10. [[Google Scholar](#)]

Antonaci A, Dagnino FM, Ott M, Pozzi F, Bravi P, Lutz M, Pilosu S, 2013.

DOI: [10.1109/DigitalHeritage.2013.6744741](https://doi.org/10.1109/DigitalHeritage.2013.6744741) Published in: [2013 Digital Heritage International Congress \(DigitalHeritage\)](#)

Baltzell, A., & Summers, J. (2016). The future of mindfulness and performance across disciplines. *Mindfulness and Performance*, 515-541.

Bergevin C, Narayan C, Williams J, Mhatre N, Steeves J, Bernstein J, Story B. *eLife* 2020;9:e50476. DOI: <https://doi.org/10.7554/eLife.50476>

- Bisson, M. (2017) *Coach Yourself First: A Coaches Guide To Self-Reflection*. Kibworth Beauchamp, Leicestershire: Matador Books.
- Brown RP, Gerbarg PL. Sudarshan Kriya yogic breathing in the treatment of stress, anxiety, and depression: part I-neurophysiologic model. *J Altern Complement Med*. 2005;11:189–201. [[PubMed](#)] [[Google Scholar](#)]
- Carman J. (2012). *Yoga for singing : A developmental tool for technique and performance*.
- Castelblanco L, Habib M, and Stein DJ. *et al.* (2014)
Singing voice handicap and videostrobolaryngoscopy in healthy professional singers
J Voice, 28 (2014), pp. 608-613, 10.1016/j.jvoice.2014.03.003
- Cazden J. Screaming for attention: the vocal demands of actors in violent interactive games. *J Voice Off J Voice Found*. 2017;31:1–2. [https:// doi.org/10.1016/j.jvoice.2016.02.001](https://doi.org/10.1016/j.jvoice.2016.02.001).
- Collins C. Yoga: Intuition, preventive medicine, and treatment. *J Obstet Gynecol Neonatal Nurs*. 1998;27:563–8. [[PubMed](#)] [[Google Scholar](#)]
- Czajkowski, A. L., & Greasley, A. E. (2015). Mindfulness for singers: The effects of a targeted mindfulness course on learning vocal technique. *British Journal of Music Education*, 32(2), 211-233. Retrieved from doi:<http://dx.doi.org.ezproxyles.flo.org/10.1017/S0265051715000145>
- Czajkowski, A.-M. L., & Greasley, AE. (2015). Mindfulness for singers: The effects of a targeted mindfulness course on learning vocal technique. *British Journal of Music Education*, 32(2), 211–233. <https://doi.org/10.1017/S0265051715000145>
- Eckers, C, Hultz D, Kob, M, Murphy P, Houben D, Lehnert B (2009) “*Voice production in death metal singers*”. Conference proceedings of NAG/DAGA 2009, Rotterdam: 1747-1750.
- Erbe, M (2014) “*By demons be driven? Scanning ‘monstrous’ voices*”. Hardcore, Punk and Other Junk, ed. Abbey, E.J. & Helb, C. New York, Toronto & Plymouth (UK): Lexington Books: 51-71.

Farb, NA, Segal, ZV, Anderson, AK (2013) Mindfulness meditation training alters cortical representations of interoceptive attention. *Social Cognitive and Affective Neuroscience*, 8, 15–26.

Fruzzetti, AE, Erikson, KR (2009) Mindfulness and acceptance interventions in cognitivebehavioral therapy. In K. S. Dobson (Ed.), *Handbook of Cognitive-Behavioral Therapies*, 3rd Edition (pp. 347–374). New York, NY: Guilford Press.

Fulton, PR. (2005). Mindfulness as clinical training. In C. K. Germer, R. D. Siegel, & P. R. Fulton (Eds.), *Mindfulness and psychotherapy* (pp. 55–72). New York: Guilford Press.

Fulton, PR (2005). Mindfulness as clinical training. In C. K. Germer, R. D. Siegel, & P. R. Fulton (Eds.), *Mindfulness and psychotherapy* (pp. 55–72). New York: Guilford Press.

Gembris, H., Heye, A., & Seifert, A. (2018). Health problems of orchestral musicians from a life-span perspective: Results of a large-scale study. *Music & Science*. Retrieved from <https://doi.org/10.1177/2059204317739801>

Gibbs, G. (1988) *Learning by doing. A guide to teaching and learning methods*
Further Education Unit at Oxford Polytechnic, London

Goleman, D.(1988). *Emotional Intelligence*.

Goleman, D. & Davidson, R.J. (2017). *Altered traits: Science reveals how meditation changes your mind, brain, and body*. New York, NY: Avery.

Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research*, 57, 35–43.

Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research*, 57, 35–43.

Harrison N, Watson A (2020) A singer's guide to the larynx

Hassed C. Meditation in general practice. Aust Fam Physician 1996; 25(8):1257–1260.

Hong, KH, Yang, YS, Kim, HK. Acoustic and Laryngeal characteristics of Korean Traditional Singers. Korean J Otolaryngol. 1996;39(10):1622-1632. Available from: [http:// jkorl.jatsxml.org/upload/pdf/0011996214.pdf](http://jkorl.jatsxml.org/upload/pdf/0011996214.pdf)

Hong KH. The Vocalization for Korean Traditional Song 'Pansori.' Journal of The Korean Society of Laryngology, Phoniatrics and Logopedic. 2011;22(2):111–4. Available from: <https://jkslp.org/upload/pdf/jkslp-22-2-111.pdf>

Hongm KH, Kim HG, Kim SS. The Professional Singers' Voice Evaluation between Western Singing and Pansori Based on Vocal Fold Profiles and Acoustic Representations. Commun Sci Disord. 2006;11(3):153–64. Available from: [https://www.e-csd.org/upload/11\(3\)_10.pdf](https://www.e-csd.org/upload/11(3)_10.pdf)

Izdebski K, Di Lorenzo E, Yan Y, Blanco M (2016) What we have learned about extreme metal production from HSDP

Kabat-Zinn, J. (1990). Full catastrophe living: The program of the stress reduction clinic at the University of Massachusetts Medical Center. New York: Delta.

Karasek R., Theorell T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life*. Basic Books.

Reid, K., McKenna, V., Smith, D. (2022). Mitigating Dysphonia, Pain, and Vocal Handicap after Violent Video Game Voice Overs: A Pilot Investigation into Vocal Combat Technique Training, DOI:<https://doi.org/10.1016/j.jvoice.2022.06.015>

Kim H., Mastnak W., (2015). Creative Pansori: Methodological Features & Medical Ethnomusicological Aspects of a New Korean Approach to Music Therapy. *Voices a world forum for voice therapy*

Kochupillai V, Kumar P, Singh D, Aggarwal D, Bhardwaj N, Bhutani M, Das SN. (2005).Effect of rhythmic breathing (Sudarshan Kriya and Pranayam) on immune functions and tobacco addiction. *Ann N Y Acad Sci.* 2005;1056:242–252. [[PubMed](#)] [[Google Scholar](#)]

Leary, M. R., & Tate, E. B. (2007). The multi-faceted nature of mindfulness. *Psychological Inquiry*, 18(4), 251-255.

LeBorgne & Rosenberg, 2018. *Application of Exercise Physiology Principles for Vocal Athletes During Vocal Injury Recovery and Performance Maximization*. https://doi.org/10.1044/2018_PERS-SIG3-2018-0003

Martin, J. R. (1997). Mindfulness: A proposed common factor. *Journal of Psychotherapy integration*, 7(4), 291-312.

Masicampo, E. J., & Baumeister, R. F. (2007). Relating mindfulness and self-regulatory processes. *Psychological Inquiry*, 18(4), 255-258

Mathmann P, Konerding U, Deuster D, Neumann K, 2021, *Journal of Voice*
[https://www.jvoice.org/article/S0892-1997\(21\)00251-4/fulltext#%20](https://www.jvoice.org/article/S0892-1997(21)00251-4/fulltext#%20)

Matrenitsky, and Friedman. "Transpersonal Effects of Exposure to Shamanic Use of Khoomei (Tuvan Throat Singing)." *International Journal of Transpersonal Studies*. 2012.

McCall T. New York: Bantam Dell a division of Random House Inc; 2007. *Yoga as Medicine*. [[Google Scholar](#)]

Mecorio, F., Santangelo, F., Jang, S., Kweon, TH., Gucciardo, AG. (2021). Pansori today: aesthetic demands vs. vocal health. *Revista de Investigación e Innovación en Ciencias de la Salud*. 3(2), 03-23. <https://doi.org/10.46634/riics.57>

Moon S-J. Acoustic Characteristics of Korean Traditional Singing Voice: a Preliminary Report. The Korean Society Of Phonetic Sciences And Speech Technology. 1996;24:367-371. Available from: <https://www.koreascience.or.kr/article/CFKO199613842053847.pdf>

Nelson R., Ryker K., Bless D., (1997). Vocal violence in actors: An investigation into its acoustic consequences and the effects of hygienic laryngeal release training .*Journal of voice* [https://doi.org/10.1016/S0892-1997\(00\)80029-6](https://doi.org/10.1016/S0892-1997(00)80029-6)

Pegg, C., “Reviewed Work: Where Rivers and Mountains Sing: Sound, Music, and Nomadism in Tuva and Beyond” *The World of Music* 49, no. 1, 195-199. 2002.

Robin Oberg, What is throat singing, 2008.

Sakakibara, KI., Fuks, L., Magawa, H., Tayama, NI. (2004, March-April). *Growl voice in pop and ethnic styles. Proceedings of the International Symposium on Musical Acoustics, Nara, Japan.*

Sataloff, RT. (2006). *Vocal Health and Pedagogy, Volume: Science and Assessment* (2nd ed.). Plural publishing.

Sharma P, Thapliyal A, Chandra T, Singh S, Baduni H, Waheed SM. Rhythmic breathing: immunological, biochemical, and physiological effects on health. *Adv Mind Body Med.* 2015;29:18–25. [[PubMed](#)] [[Google Scholar](#)] [[Ref list](#)]

Tsai, CG. (2005). *Chaotic behavior of performers' vocalizations: An interdisciplinary study of growl voices (in Chinese).* *Taipei Theatre Journal*, 2, 39-62.

Tara McAllister-Viel (2001). A Cross-Cultural Examination of Breath and Sound Production in Pansori, *Voice and Speech Review*, 2:1, 297-311, DOI: 10.1080/23268263.2001.10761483

Tsai C, Wang L, Wang S, Shau Y, Hsiao T. (2010) Aggressiveness of the GrowlLike Timbre: Acoustic Characteristics, Musical Implications, and Biomechanical Mechanisms

Tsaltampasi, 2023, unpublished

Williams K, Steinberg L, Petronis J. Therapeutic application of iyengar yoga for healing chronic low back pain. *Int J Yoga Ther.* 2003;13:55–67. [[Google Scholar](#)] [[Ref list](#)]

Young, S. (1997). *The Science of Enlightenment*. Boulder, CO: Sounds True.

Zaccaro A., Piarulli A., Laurino M., Garbella E., Manicussi D., Neri B., Gemignani A. (2018). *How breath-control can change your life : A systematic review on psycho-physiological correlates go slow breathing.* doi: [10.3389/fnhum.2018.00353](https://doi.org/10.3389/fnhum.2018.00353)

Zangger Borch, D., Sundberg, J., Lindestad, PÅ., Thalén, M. (2004) “Vocal fold vibration and voice source aperiodicity in ‘dist’ tones: a study of timbral ornament in rock singing”. *Logopedics Phoniatrics Vocology*; 29 (4): 147-153.

Zangger Borch, D., Sundberg, J (2011) “Some phonatory and resonatory characteristics of the rock, pop, soul, and Swedish dance band styles of singing”. *Journal of Voice*; 25 (5): 532-537.

GREY LITERATURE

Melissa Cross, *Zen of Screaming*, 2004

<https://www2.lawrence.edu/> (John Koopman, 1999)

<https://www.atlasobscura.com/articles/sardinian-throat-singing>

Andrew J. (2015). *Origins of evil : the birth of extreme metal*.

<https://metalinjection.net/editorials/origins-of-evil-the-birth-of-extreme-metal>

Cross & Sadolin, 2019, *Masterclass : Extreme Voices*, lecture notes, British Voice Association, David Game College, delivered on 23th and 24th November 2019.