Integrated Practice: Expert-Informed Physical Exercise Regimens to Enhance Vocal Athlete Performance

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Proposal:

Integrated Practice: Expert-Informed Physical Exercise Regimens to Enhance Vocal Athlete Performance

Context:

As a singer, vocal coach, and personal trainer (CPT), my professional journey propels the inception of this study. Vocal athletes (VAs) (LeBorgne and Rosenberg, 2019), high-performing artists with rigorous vocal and physical demands, inspire this research to unite vocal performance and physical fitness. My dual expertise uniquely allows me to navigate this dynamic intersection and address the unique challenges VAs face (Malde *et al*., 2020; Chandler, 2022). While exploring the interdependence of physical and vocal health and performance, I aim to contribute meaningful insights that enhance the training, well-being, and performance of VAs, applying my diverse skill set to tailor a physical exercise regimen (PER) that optimises full vocal and physical performance potential (Friedlander & Dawson, 2006; Byrne, 2020).

The study will serve as a collaborative space where the expertise of professionals in exercise physiology and vocal athletics (VAcs) converge, fostering a conducive environment to develop a holistic program (LeBorgne & Dal Vera, 2015). Committed to advancing the well-being and performance of VAs, this study draws its strength from fusing practical experience, theoretical knowledge, and dedication to vocal-body balance (Lee *et al*., 2020).

Research Questions:

How can insights from voice and sports science experts inform the development of optimised PER for VAs while safeguarding vocal health? What changes or adaptations do VAs perceive in their training and performance before, during, and after implementing the expert-informed PER, and what are their thoughts on the overall PER experience?

Justification:

VAs often face challenges maintaining physical health while preserving their unique vocal abilities (Heyman *et al*., 2019), such as compensation or lack of stamina throughout performance. The absence of specialised PE programs tailored to this demographic's needs (Friedlander, 2018) underscores the necessity for comprehensive research (Holden, 2023). This study aims to empower VAs with sustainable and integrated practices that foster interdependence between physical exercise (PE) and vocal training. By investigating the collaborative process, this study seeks to understand and refine the effectiveness of the PER in enhancing the holistic training, well-being and performance of VAs. Balancing PE with vocal

performance is crucial for VAs (Chandler, 2022). This study addresses a significant gap by leveraging experts' insights from exercise physiology and vocal athletics (VAcs) to develop a balanced PER that enhances the fusion of these essential, interdependent elements (Lee *et al*., 2020).

Table 1: Intentions:

Aims:	Objectives:
● Explore expert recommendations and guidelines to customise a PER that aligns with unique VA needs and demands ● Consider performance goals, demands, and vocal well-being ● Investigate VA perceptions on PER impact ● Explore the reported experiences, benefits, challenges, adaptations, and effectiveness	● Gain insight from experts to understand the specific design criteria for an ethical and effective PER for VAs ● Facilitate a collaborative process between field experts and VAs ● Understand how to ethically create an effective PER that aligns with the specific requirements, demands, health and goals of VAs

Intended Impact:

This project aspires to profoundly impact VAs through specialised PER-tailored exercises, informed by expert consultations, to amplify physical fitness and vocal abilities, well-being, and professional longevity (Friedlander, 2018) without sacrificing vocal technique, health, or practice (Richie, 2013; Nesbitt, 2023).

As the investigator, this study provides an opportunity to deepen my understanding of interdisciplinary collaboration and the nuanced relationship between PE and vocal aptitude (Primov-Fever *et al*., 2014). It offers a chance to apply theoretical knowledge to practical settings, fostering a more comprehensive understanding of my field (Booth *et al*., 2012; Booth *et al*., 2021).

Beyond personal development, the study aims to contribute valuable insights into VAcs, voice science, exercise physiology, and their interdisciplinary collaboration, potentially improving VAs' overall training and performance at personal and field levels. Figure 1 and the following methodology section will delineate how these values and intentions will manifest in hopes of justifiably answering the research questions.

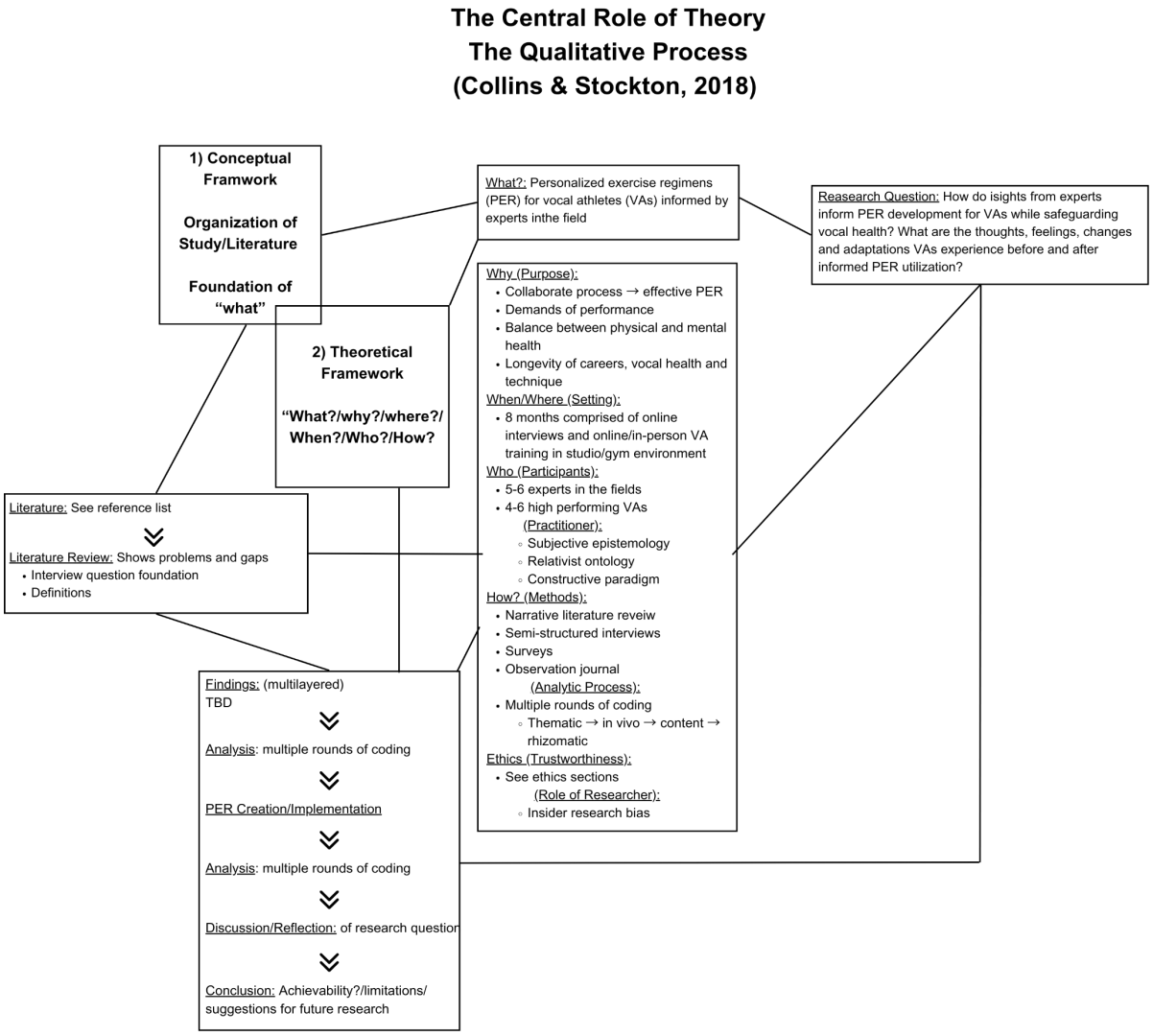


Figure 1: Research-Creation Process through Collins and Stockton's (2018) Central Role of Theory (App.20)

Methods:

The study's exploratory, qualitative approach facilitates in-depth insights into the expert knowledge and VA experiences (Braun & Clark, 2008). Grounded in subjective epistemology, relativistic ontology, and the constructive paradigm (Killam, 2013), it values diverse individual experiences and perspectives. Recruitment will involve sampling five to eight field experts based on their credentials and publications and selecting four to six healthy, currently performing VAs within my studio.

A narrative literature review will efficiently gather current information on PERs for VAs by exploring recent studies in vocal training and sports science (Ferrari, 2015; Booth *et al*., 2021).

This foundational knowledge will inform expert discussions and PER formulation, with thematic coding and mind mapping (Braun & Clark. 2008) distilling critical insights. Integrating the latest research and practices ensures an ethically formulated PER that aligns and synthesises existing knowledge and understanding of diverse perspectives (Kiteley & Stogdon, 2014).

Semi-structured interviews with experts will provide specialised insights (Briggs, Coleman & Morrison, 2012). Thirty-minute discussions, based on literature and experience, will explore tailored PER intricacies, embracing a relativistic ontology and allowing for the exploration of diverse viewpoints. Multiple thematic and in vivo coding rounds will ensure nuanced exploration (Saldaña, 2021). Embracing a relativistic ontology (Killam, 2013), these sessions will explore their perspectives, recommendations, and nuanced understandings, contributing to a comprehensive grasp of the considerations necessary for optimising exercise routines in VAcism. The PER will be developed using inductive data from expert interviews (Pohl *et al.*, 2015), allowing for an informed regimen using collective insights, advice, and experiences from field-leading professionals.

Three qualitative surveys will capture VAs' sentiments, thoughts, and experiences regarding the PER (Dearnly, 2005). Baseline information is obtained through an intake survey at the start of the research, along with health factors, previous experience, expectations, concerns and preconceptions. A mid-program survey will mark their progress and allow the practitioner to address any issues. A post-research survey will gather feedback and reflections on perceived improvements, employing a combination of in vivo and process coding for systematic data extraction (Saldaña, 2021). This data will offer valuable insights into the athletes' perspectives, aiding in assessing the regimen's efficacy and their holistic experiences throughout the research period (Punch, 1994). This approach, aligned with the constructive paradigm, allows participants to contribute actively, fostering a collaborative understanding of the nuance between PE and vocal performance.

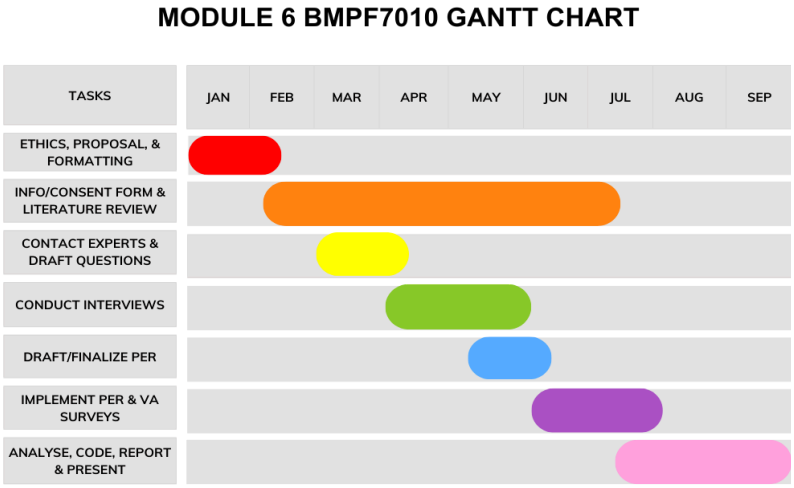
A supplementary practitioner observation journal will document VAs' training performance, capturing nuances, improvements, reflections, and potential outcomes, using Kolb's Experiential Learning Theory (1984) to encourage a cyclical and experiential approach to navigate the complexities of insider knowledge (Bonner & Tolhurst, 2002; Mercer, 2007; Costly *et al*., 2012). This critical resource fosters a comprehensive understanding of exercise regimens' direct impact on performance, using content and thematic coding for systematic categorisation (Saldaña, 2021). Moreover, the journal will serve as a tool for future research hypotheses. Confidentially securely stored, this will uphold ethical standards and protect validity (Punch,

1994; Israel, 2014). The journal will undergo a coding process, employing content coding (Pohl *et al.*, 2015) to systematically categorise explicit details and thematic coding (Castleberry & Nolen, 2018; Saldaña, 2021) to identify overarching patterns and themes while comprehensively analysing the experiences and reflections documented.

For achievability, this study will select a manageable number of participants, allowing for in-depth exploration (Denscombe, 2003). However, limitations operate within an emerging and cooperative field, where standardisation in expert qualifications may vary (Leavy, 2014). This could introduce creativity or differences in opinions among experts, influencing the interpretation of findings (Pohl et al., 2015) and, ultimately, the PER. Additionally, generalizability (Leavy, 2014) may be impacted by the sample size and variations in the experiences of VAs, potentially limiting the broader applicability of the study's outcomes (Ofli et al., 2015). Confirmation bias (Leavy, 2014) with VA participants is also possible, as our existing professional relationship may influence their responses and perceptions. The study's success relies on participants' active engagement and cooperation and how potential biases will be mitigated through transparent reporting of methods and findings (Punch, 1994; Denscombe, 2003; Israel, 2014).

Figure 2: Research Timeline:

Each research task will have allocated time within the nine-month window. The timeline will be reviewed and adjusted between tasks for unforeseen circumstances (Saldaña, 2021).



Ethics:

The study and its successful ethical review (App.1) prioritise participant safety, informed consent, privacy, and intellectual property. Participants will be allowed to withdraw without consequence. Data retrieval and coding processes adhere to ethical standards, ensuring confidentiality and anonymity (Punch, 1994; Bell & Waters, 2018). Personally identifiable information, expert and VA responses, and reflections will be carefully safeguarded through secure coding and storage. Ethical considerations guide data handling, ensuring that the

research is transparent, rigorously conducted, and aligns with established standards of validity (Israel, 2014).

As an inside researcher, my dual role as a CPT and voice coach offers a unique advantage, providing VAs with highly specialised and informed guidance. However, this involvement could introduce bias (Costly *et al*., 2012), particularly in the subjective evaluation of literature, relevant information, participant progress and potential influence of personal expectations on the results. From a health standpoint, my certifications ensure that the PER will be grounded in safe, evidence-based practices promoting overall well-being (Schlabach & Peer, 2020). However, as a non-medical professional, I cannot address medical issues; therefore, any such concerns will be referred to qualified healthcare professionals for appropriate care (Pauline *et al.*, 2006).

Intended Outcomes:

Personal growth opportunities, such as addressing insider research ethics, refining qualitative research skills, and fostering interdisciplinary collaboration (Denscombe, 2003; Grant, 2012; Merriam & Tisdell, 2016), will enhance my professional development in the emerging voice and exercise integration field. This research integrates multiple approaches, adheres to ethical standards, and leverages my expertise to significantly contribute to VAcs, empowering VAs to unlock their full potential.

Report:

Integrated Practice: Expert-Informed Physical Exercise Regimens to Enhance Vocal Athlete Performance

Introduction:

The community of interest for this study, vocal athletes (VAs), are described by leaders in the field, LeBorgne and Rosenberg (2019), as high-performing professionals subjected to rigorous vocal and physical demands. VAs encounter various challenges to preserve vocal integrity during vigorous physical performances, requiring endurance and strength to avoid fatigue, strain, compensation, and inconsistency (Saxon & Berry, 2009). The intricacies between physical health and vocal performance have garnered increasing attention within the realm of vocal athletics (VAcs) to mitigate these challenges and maintain optimal health while preserving vocal capabilities (Snell *et al*., 2020), a balance critical to longevity and well-being (Heyman *et al*., 2019). General exercise regimens, most exercise professionals, and many vocal modalities do not adequately address all facets (Friedlander, 2018; Van Overmeiren *et al*., 2018; Chandler, 2022). Integrated training practices - e.g. the holistic alliance of physical exercise (PE) and vocal training - must address the essential interconnected demands of modern VAc performance.

With multipotentiality as a performer, vocal coach, and certified personal trainer (CPT), I can uniquely navigate this intersection through research and application (Friedlander, 2018). Challenges arise when practitioners lack expertise in both fields (Friedlander & Dawson, 2006; LeBorgne & Dal Vera, 2015; Rumbach *et al*., 2019), which may have repercussions of compensation, fatigue, misuse, or injury for the performer (Røksund *et al*., 2014). This research aims to develop a safe, balanced physical exercise regimen (PER), a structured PE plan designed to improve VA-specific tasks, with a comprehensive understanding of voice and physical training needs, to provide customised solutions that enhance the well-being and performance longevity of VAs.

This study focuses on filling gaps in existing research by scientifically developing and implementing a comprehensive PER and training model for VAs, incorporating interdependent aspects of physical exercise (PE) to complement vocal training. The PER will focus on form and exercise science principles (ESPs) (Johnson & Sandage, 2021; Nesbitt, 2023) to holistically train the entire performer through integrated practice, a combination that has yet to be thoroughly and systematically explored. The lack of specialised PERs tailored for VAs portrays the importance of an investigation (Friedlander & Dawson, 2006; Friedlander, 2018). This study

will explore expert opinions to advise developing and implementing a PER tailored specifically for VAs. Building on established research and extending on previous modules (Holden, 2023a; 2023b) on the necessity of physical exercise and dynamic engagement for VAs, this study's goal is to optimise training, health, and performance of VAs by integrating practical experience, theoretical knowledge, and a commitment to balancing physical health with vocal capabilities (Lee *et al*., 2020). This will be reflected in the integrated PER, providing coaches and VAs with the tools and knowledge to achieve full training potential and enhance performance and career longevity.

The initial aim is to investigate how insights from experts with voice and sports science experience, knowledge, and training can inform an optimised PER for VAs while safeguarding vocal health (Haldane, 2018; Van Overmeiren *et al*., 2018; Summitt & Weidner, 2022). Subsequently, this study will explore VAs' perceptions of the developed PER and adaptations they observed in training and performance, aiming to enhance dynamic and holistic well-being while providing VAs with sustainable, integrated practices.

This research offers opportunities for professional growth by deepening my understanding of interdisciplinary collaboration (Snyder, 2019) and the nuanced relationship between PE and the voice (Naito & Niimi, 2000; LeBorgne & Rosenberg, 2019). The implications of this study extend beyond vocal training and exercise science, offering possible valuable insights and a practical model and PER aimed at improving VA training, performance, and health, as well as interdisciplinary strategies that could foster greater collaboration and further research between these disciplines.

The following literature review will explore these issues in-depth, highlighting the voids in current training methodologies and modalities (Leavy, 2014), how they address concerns, the limitations, and how much they fill the gaps (Leavy, 2014). I intend to build on the literature's foundation to develop the PER that integrates the fields and ultimately enhances VA training, well-being, and performance. This research will aim to answer the research questions of how expert insights from both fields can inform the development of an optimised PER that safeguards vocal health and subsequently examine the changes and adaptations VAs perceive in their training and performance throughout the implementation of the PER, as well as their overall experience.

Literature Review:

By employing an inductive approach, this literature review will identify and synthesise relevant knowledge and gaps on topics surrounding VAcs (Paul & Criado, 2020; Castleberry &

Nolen, 2018), providing a comprehensive overview of current methodologies and findings and areas for future research (Kiteley & Stogdon, 2014; Snyder, 2019; Peters *et al*., 2020). To answer the research questions and hit the target aims, themes from Table 2 will be discussed to create questions for expert consultations.

Table 2: Literature Review Themes and *Subthemes*

1) **VAc Demands**
    a) Current Training
    b) VA Needs
        i) Load vs Demand
        ii) Muscular and Biomechanical Knowledge
        iii) Stamina and Endurance
        iv) Dynamic Structure and Alignment
            (1) Kinesthetic Awareness
            (2) Tension
2) **VAc Training Requirements**
    a) Programming Essentials
        i) Exercises
        ii) ESPs
        iii) Challenges
        iv) Recommendations

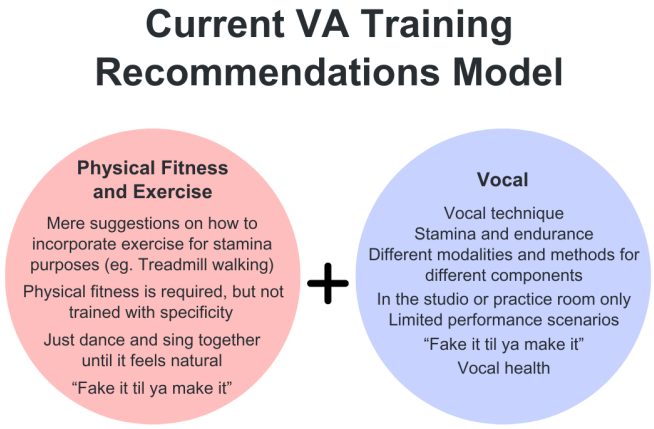
VAc Demands:

As discussed earlier, VAs are expected to meet various demands for successful performance, including vocal and physical endurance, agility, and technique (Thibeault et al., 2004) while delivering flawless and emotion-evoking performances (Titze, 2006). These combined demands place immense stress on the vocal body systems (Røksund *et al*., 2014), and Sataloff (2017) and Morton (2020) suggest that training approaches and regulation tactics must reflect these challenges.

Current Training:

Current VA training recommendations often treat physical exercise and voice training as separate entities, leaving VAs to manage these demands independently despite high expectations and pressures from the industry (Smeltzer, 2017; Snell, 2020; Chandler, 2022). This separation creates significant challenges, as conflicting or improper muscular alignments, recruitment strategies or forms, and habits can arise, increasing the risk of injury (Morton, 2020). Framework 1 models some current recommendations VAs are given, mainly by vocally focused

coaches, and expected to manage, typically unassisted by dual-trained professionals (Saxon & Berry, 2009; Morton, 2020).



Framework 1: Current VA Training Recommendations

The industry's requirements for PE and dynamic movement necessitate a level of physical conditioning that traditional vocal training alone does not provide (Fontan et al., 2017; Snell et al., 2020; Summitt & Weidner, 2022; Zeine & Walter, 2002; Van Overmeiren et al., 2018). Traditional vocal and movement training methods such as the Alexander technique (1890) (Weiss, 2005; Tarr, 2008) and Linklater Technique (2002) (Linklater, 2006; 2018), among others, must be challenged (Cranton, 2006; Sataloff, 2017) to incorporate exercises past mere alignment and awareness (Friedlander & Dawson, 2006; Friedlander, 2018). To meet the rigorous VAc demands explained below, these standard training modalities and recommendations must be challenged to integratively address vocal and physical performance needs by incorporating cross-training strategies to support the health and longevity of VAs. An integrated practice can help VAs manage the physical demands of performance, potentially reducing the risk of injuries and vocal fatigue (Snell et al., 2020).

VA Needs:

As performers who rely on their vocal bodies as their primary tool, VAs face significant demands due to the vocality and physicality of performance, the length of performances, and the cumulative wear and tear on the voice and body (Nesbitt, 2023). The complex and ever-changing performance environment necessitates that VAs train for vocal and physical requirements (LeBorgne & Rosenberg, 2019), as success and longevity hinge on the delicate balance. VAc professionals must address several critical factors: simultaneously manage vocal and physical load and demand, understand biomechanical and muscular structures of vocal

body systems, foster kinesthetic awareness, develop vocal and physical stamina, optimise dynamic alignment, and mitigate overall tension. Recognising these interconnected demands (Chandler, 2022) is essential to train VAs to sustain peak performance while preventing injury, compensation, or fatigue (Nanjundeswaran et al., 2017).

Load vs Demand:

A study by Hunter *et al*. (2020) clarifies the distinction by resolving the ambiguity of vocal load and demand: "vocal load," the phonatory effort exerted over time, and "vocal demand," which refers to the vocal requirements of a given scenario, independent of the vocalist's technique or physiology. These concepts are crucial for understanding the challenges VAs face, as high vocal load, especially under high demand, can lead to fatigue, strain, and injury (Solomon, 2008; Sivasankar & Fisher, 2007). The terms "load" and "demand" in vocal and physical contexts are not directly analogous, which complicates the development of integrated training protocols (Orlikoff, 2008; Rumbach, 2013; Primov-Fever et al., 2014; Schoenfeld & Contreras, 2016; Hunter et al., 2020; Snell et al., 2020). Similarly, physical load and demand differ but are interrelated, with physical exertion often exacerbating vocal strain (Chandler, 2022). Integrating training programs that address vocal and physical demands is essential to prevent injury and optimise performance, ensuring longevity in vocally demanding careers (Snell et al., 2020; Orlikoff, 2008; Primov-Fever et al., 2014).

VAs often lack specific training for managing vocal and physical loads resulting from performance demands (Morton, 2020), leading to strain, compensatory habits, and fatigue. This gap can be addressed through evidence-based training programs designed to enhance performance and protect vocal body systems and health by understanding, managing, and tailoring to symbiotic vocal and physical demands. To develop these programs effectively, a deeper understanding of the muscular structures and biomechanics involved in VA performance is crucial (Andersen & Aagaard, 2010; Nanjundeswaran *et al.*, 2017) to targeting unique demands, preventing injury, and enhancing training and performance while ensuring longevity. Without this knowledge, training programs risk being ineffective or harmful, as they may not adequately prepare the vocal and physical systems for the complex interactions and stresses encountered during performance (McHenry & Evans, 2016).

Muscular and Biomechanical Knowledge:

Plotkin *et al.* (2021) mentions that muscles respond to how they are trained and maintained, proving that the skeletal and laryngeal anatomy relationship, particularly their muscle fibre compositions, bioenergetics (Sandage & Smith, 2017) and training demands,

present a fascinating study area for understanding VAc performance. To effectively train VAs for enhanced performance, it is crucial to understand how demands affect their distinct and interconnected laryngeal and skeletal musculature and their intricate coordination (LeBorgne & Rosenberg, 2019). Given the biomechanic disparities between laryngeal and skeletal muscles and the VAc demands placed upon them, there is a critical need to address gaps in the literature concerning their specific and integrated training and maintenance practices (Hoh, 2005).

Laryngeal muscles experience unique stress during vocal performance (Hoh, 2005; Tellis *et al*., 2004; Friedlander, 2018). They are less understood than skeletal muscles and a challenge to study due to their intricate nature and inaccessibility to assess in vivo without potential harm or interference with natural function. Most information about laryngeal musculature is often generalised from skeletal limb muscles (Sandage & Smith, 2017). Laryngeal muscles are subject to significant vocal load, compounded by physical load, necessitating precise control, flexibility, and endurance to combat fatigue and compensation (Hunter *et al.,* 2020). They exhibit fibre type, capillary density, and metabolic features similar to limb muscles, containing a mix of Type I, Type IIa, and Type IIx fibres (LeBorgne & Rosenberg, 2018) that enable rapid and fatigue-resistant functions essential for phonation, respiration, airway protection and nuanced control of vocalisation (Verdolini *et al*., 1994). They are particularly vulnerable to fatigue and injury if not correctly conditioned (Sandage & Smith, 2017; LeBorgne & Rosenberg, 2018).

Skeletal muscles, which are generally more robust and capable of handling greater loads involved in gross motor movement (McCall, 2019), are well studied (LeBorgne & Rosenberg, 2018), with fast-twitch type II fibres for power and agility and slow-twitch type I fibres for stamina and endurance (Hoh, 2005). These muscles benefit from well-established strength training protocols, cardiovascular conditioning, and mobility exercises in typical training modalities (McCall, 2019).

These demands highlight the need for specialised training that addresses the differences in muscle composition and function between the larynx and the rest of the body (Friedlander, 2018). Further investigation must comprehensively understand laryngeal musculature and how their differences to skeletal muscles can be addressed to effectively tailor training programs for VAs (Rumbach *et al*., 2019) for desired regulation results. By developing new integrative definitions, modalities, and research approaches, future research can better support the health, performance, and longevity of VAs, ensuring their sustained vitality in demanding careers (LeBorgne & Rosenberg, 2018; Chandler, 2022).

Stamina and Endurance:

Vocal and physical stamina are critical for the long-term health and sustainability of VAc performance. Since performance relies on proper breath control and support, it is considered an aerobic activity (Sandage & Smith, 2017). Research indicates continuous, high-energy performance demands can lead to vocal and physical fatigue if not adequately managed and trained (Morton, 2020). However, current vocal training models often fail to sufficiently prepare VAs for these demands. For instance, merely instructing VAs to sing while walking on a treadmill (Williamon, 2004), a common practice meant to simulate performance stamina (Røksund *et al*., 2014), is insufficient to build the stamina and endurance required for the rigorous demands of professional performance. This approach lacks the comprehensive training to develop the cardiovascular and muscular endurance essential for sustained performance.

A more holistic training regimen integrating targeted physical conditioning with vocal practice is necessary to enhance vocal and physical endurance. By incorporating exercises that build overall stamina and promote efficient breath support, VAs can improve their resilience against fatigue, maintain vocal health, and sustain high-performance levels throughout their careers. Stamina and endurance also have physical manifestations during VA training and performance, where dynamic structure and alignment play a crucial role in maintaining form and energy while preventing fatigue.

Dynamic Structure and Alignment:

Static posture refers to a fixed, rigid body alignment (Schneider et al., 1996), often seen in traditional vocal training and studio settings (Chandler, 2022). However, this approach can be detrimental to VA performance. Prolonged static alignment often leads to lower kinesthetic awareness and proprioception (Schneider et al., 1996), muscle stiffness, restricted breathing, and decreased flexibility, all counterproductive in dynamic performance settings (Lee et al., 2020). This rigidity can increase compensatory tension in the vocal apparatus, generally negatively impacting both vocal and physical performance.

In contrast, dynamic posture and alignment involve adaptable movements that allow the body to respond fluidly to performance demands. Maintaining dynamic posture supports better breath control, efficient muscular engagement, and balanced physical effort (Sandage & Smith, 2017). For VAs, dynamic alignment enhances breath management, reduces unnecessary strain, and promotes fluidity in both vocal production and physical movement. This flexibility enables rapid changes in vocal technique and style, allowing VAs to perform with greater agility and less risk of injury. Additionally, dynamic posture, by supporting the natural biomechanics of the body,

helps VAs sustain energy throughout their performance, thereby avoiding muscular fatigue or vocal strain (Holden, 2023).

Kinesthetic Awareness and Proprioception:

Current vocal training models often fall short of adequately developing kinesthetic awareness and proprioception, which are essential for VAs. Kinesthetic awareness refers to the ability to sense and control the position and movement of the body in space. At the same time, proprioception is the body's internal sense of position, movement, and balance (Malde *et al.*, 2020). These skills are critical for VAs as they allow for real-time adjustments in posture and alignment, enhancing the body's ability to respond to the demands of dynamic performance. Lastly, the ability to maintain stamina and flexibility during vocalising and performance is supported by the integrity and structure of the vocal body (Friedlander, 2018), which requires manageable tension, as discussed below.

Tension and Release:

Balancing tension and release is another crucial aspect of training that is often overlooked in traditional models. Excessive tension, particularly chronic or unmanaged, can lead to detrimental effects of strain, pain and fatigue (Primov-Fever *et al*., 2014), which can impair vocal production and overall physical performance (Lee et al., 2020). Tension often arises from improper posture (Lee et al., 2020), technique (Sandage & Smith, 2017), and form (Chandler, 2022), as well as excessive physical and vocal exertion (Snell et al., 2020) or inadequate preparation (Friedlander, 2018). The demanding nature of VA performances can exacerbate this tension if not adequately released or managed (Orlikoff, 2008). When tension accumulates in the body, it can restrict the flexibility of the vocal apparatus, leading to decreased vocal agility, increased likelihood of vocal strain, and physical compensation or imbalance (Hunter et al., 2020; Schoenfeld & Contreras, 2016). This tension can also disrupt breath control, which is essential for maintaining consistent quality and stamina throughout VA performance (Primov-Fever et al., 2014; LeBorgne & Rosenberg, 2018).

Managing tension is crucial for VAs to avoid the detrimental effects it can have on their vocal and physical performance. By understanding the causes and impacts of tension and implementing targeted strategies to release it, VAs can achieve greater vocal and physical freedom, ultimately enhancing their performance quality and longevity (Rumbach, 2013; Holden, 2023). These components are essential for a comprehensive approach to VA training. However, current models do not fully address these demands, highlighting the need for more integrative

and evidence-based training strategies that align with the physical and vocal challenges faced by VAs in today's performance environments (Ray *et al.*, 2018).

VAc Training Requirements:

The preparation required for athletically demanding performance extends beyond simple and static approaches or recommendations (Friedlander, 2018). As proven above, these demands necessitate comprehensive methods that include PE conditioning and vocal exercise to balance the symbiotic nature of performance (Lawrence, 2022). It is suggested by (Morton, 2020) that VAs who engage in both physical and vocal training are better equipped to handle the rigours of performance without experiencing compensations or fatigue.

Programming Essentials:

Exercise Forms:

Effective VAc programming requires a multifaceted approach that integrates various training components to support optimal performance and long-term health while preventing injury. Integrating strength training (Chandler, 2022), cardiovascular conditioning (Corsi *et al*., 2022), flexibility exercises (LeBorgne & Dal Vera, 2015), and specific techniques that enhance respiratory strength (Chandler, 2022), stamina (Friedlander 2018), posture (Petterson & Westgaard, 2004), core strength (Rumbach *et al*., 2019), coordination and proprioception (Snell *et al*., 2020), and overall physical fitness (LeBorgne & Rosenberg, 2018), support vocal performance (Friedlander & Dawson, 2006; Friedlander, 2018). However, few functional and holistic models or programs exist (Morton, 2020). Integrated training is vital for maintaining the balance between vocal and physical demands, ensuring that both systems support each other rather than compete.

A well-rounded regimen (Sandage & Smith, 2017; McCall, 2019; Blake & Solberg, 2023) should begin with dynamic warm-ups that incorporate specific mobility exercises and integrated breathing techniques to prepare both the body and voice for the demands of performance (McHenry & Evans, 2016). Strength and resistance training is essential for developing the muscular power endurance needed to sustain performance efforts (Friedlander & Dawson, 2006), while cardiovascular conditioning enhances overall stamina and supports the aerobic nature (Nanjundeswaran et al., 2017). Core development is another critical element, as a strong and stable core provides the foundation for dynamic structure, effective breath support, and vocal control (Corsi *et al*., 2022). Following the main workout, a cool-down phase (Ragan, 2020) with vocal body flexibility-focused exercises and static stretching helps to release tension and promotes muscle recovery, reducing the risk of strain or injury (LeBorgne & Rosenberg, 2018).

Incorporating meditation or relaxation practices into the cool-down further aids mental recovery and stress management, which is vital for maintaining healthy and sustainable practices (Nesbitt, 2023). Finally, translating recovery strategies from sports athletes, including proper rest and active recovery, is necessary to prevent injury and ensure the longevity of a VA's career (LeBorgne & Rosenberg, 2018; *Chua et al.*, 2022). These programming essentials are crucial for creating a balanced and effective training plan that addresses the unique needs of VAs.

Challenges:

However, integrating fitness and vocal training poses significant challenges despite its benefits. One major issue is practitioners' potential need for cross-disciplinary expertise (Rumbach, 2013). Voice coaches may lack the knowledge in physical training necessary to design effective and safe exercise programs, while fitness trainers may not fully grasp the nuances of vocal health and technique (Røksund, 2012; Rumbach, 2013; Fontan *et al*., 2017; Spivey & Saunders Barton, 2018). This knowledge gap can lead to ineffective or even harmful training regimens, including inappropriate exercise selection, incorrect form cues, and inadequate conditioning (Schlabach & Peer, 2020). Consequently, such gaps may result in muscle imbalances, increased injury risk and tension, and poor recovery management (Pauline *et al.*, 2006), all of which compromise vocal and overall health (Heyman *et al.,* 2019).

ESPs:

VAs, akin to professional sports athletes (LeBorgne & Rosenberg, 2018; Lawrence 2022), must incorporate ESPs, such as progressive overload, specificity, adaptability, and regulation (Sandage, Connor, & Pascoe, 2013; Schoenfeld & Contreras, 2016; Johnson & Sandage, 2021), for skill acquisition and upregulating the vocal body, while enhancing training and performance of VAs (Nesbitt, 2023). These principles provide a scientific foundation for designing training regimens specifically tailored to the unique demands of the performance sport, ensuring that VAs bioenergetically develop the proper musculature, endurance, strength, and flexibility necessary to sustain high levels of performance. Just as sports athletic training relies on ESPs to achieve peak physical condition (Holden, 2023) and prevent injury (LeBorgne & Rosenberg, 2018), VAs must also adopt and translate these principles to upregulate the vocal body, maintain overall health and career longevity (Chandler, 2022)

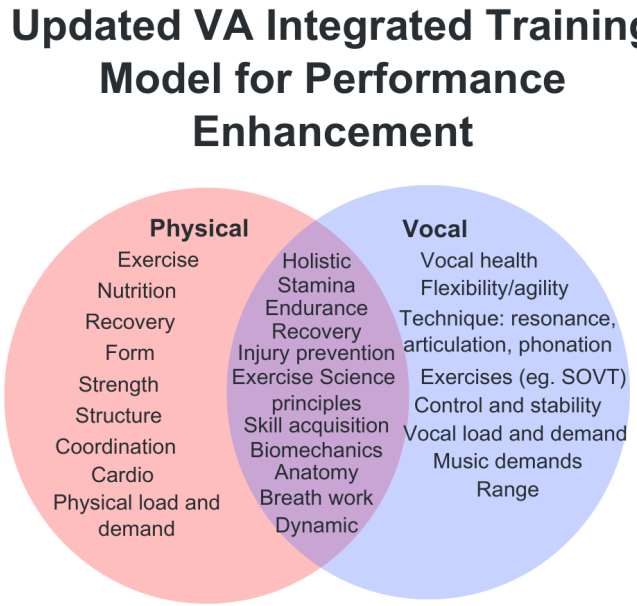
Recommendations:

To promote both vocal and physical health in VAs, training programs must be clearly defined and tailored to meet their specific needs (Chandler, 2022). This includes setting realistic goals, providing adequate instruction and supervision, and ensuring that the type, intensity, and

duration of exercises are appropriate for upregulating on a specific biomechanical level (Amonette *et al*., 2016) and maintaining overall integrity of the exercise control, form, and posture (Schoenfeld & Contreras, 2016). Avoid harmful practices such as the Valsalva manoeuvre and high subglottic pressure (Rumbach *et al*., 2019), and it is best to abstain from programming heavy, slow lifts (Chandler, 2022). The literature mentions that VA programming must allow for comprehensive conditioning from all angles, increasing physical strength, cardiovascular endurance, and vocal agility, and control, is done by incorporating exercises that address all aspects of both vocal and physical conditioning to support a well-rounded VA (Sandage & Smith, 2017; Friedlander, 2018; LeBorgne & Rosenberg, 2018).

A study by Van Hoye *et al*. (2015) mentions that regular monitoring and feedback are essential for optimising performance and health outcomes, allowing for necessary adjustments. Ethical programming, highlighted by Pauline *et al*. (2006) and Schlabach and Peer (2024), must also ensure accessibility and adaptability to various skill levels and physical conditions, recognising the diverse backgrounds and needs of VAs (Shannon & Zizzi, 2017). The program should be scalable, offering modifications for different levels of physical fitness and vocal capability (Friedlander & Dawson, 2006; Friedlander, 2018), thus minimising the risk of injury or undue strain (LeBorgne & Rosenberg, 2018). Ongoing research and adaptation are crucial for maintaining the program's relevance and effectiveness (Van Hoye *et al*., 2015). By continuously evaluating its impact and incorporating new insights and participant feedback, the program can evolve to support the long-term success and well-being of VAs, ensuring it remains comprehensive, safe, and beneficial (Pauline *et al*., 2006; Van Hoye *et al*., 2015; Schlabach & Peer, 2024).

Framework 2: Updated VA Integrated Training Model for Performance Enhancement Based on Literature and VA Needs. To ethically test this updated framework, relevant methodologies must be employed (Merriam & Tisdell, 2016). The following section will delineate the procedure and choices best suited for this investigation.



Methodology:

This qualitative study will employ a multifaceted methodological approach to gather in-depth insights from experts and VAs about developing and implementing a tailored PER. The methods will align with the study's exploratory nature to understand the emerging interplay between PE and vocal training. The research methods employed in this study will be grounded in subjective epistemology, relativistic ontology, and the constructive paradigm to appropriately capture the complex and nuanced experiences (Creswell, 2018; Leavy, 2014; Saldaña, 2021) of experts and VAs. Goulding (2002) and Leavy (2014) mention that epistemologically subjective knowledge is co-constructed between the researcher and participants. This, along with relativistic ontology - promoting multiple perspective-oriented realities (Creswell, 2018) - emphasises the importance of understanding and reporting individuals' unique perspectives (Goulding, 2002). The constructive paradigm will further support this approach by prioritising participants' meanings and interpretations of their experiences (Leavy, 2014) rather than seeking objective truth, leading to a more ethical and balanced study (Almeida *et al*., 2021). These methodological foundations ensure that the research reflects and is sensitive to varied experiences within the field of interest (Almeida *et al*., 2021). By valuing the diverse perspectives, the study can produce more holistic and contextually relevant insights (Leavy, 2014) into creating and applying an ethical (Horn, 2011) PER for VAs.

Research Design:

This study adopts a qualitative approach, particularly suited for exploring complex, context-dependent phenomena (Creswell, 2018; Merriam & Tisdell, 2016; Almeida *et al*., 2021), such as creating evidence and experience-based PER and its impact on VAs. This approach allows for a rich, nuanced understanding of participants' knowledge, experiences, and perceptions (Leavy, 2014; Collins & Stockton, 2018), facilitating the development of and reflection on a comprehensive and effective PER (Horn, 2011) as seen in the proposed Figure 1 (App.20). The exact research methods will be discussed further in the following sections.

The design basis of this research is rooted in ethical and value considerations (App.1) to ensure well-rounded and prudent research for the VAc field (Harriss *et al*., 2019). For transparency and moral standards, all participants were fully informed about the study's aims, methods, and potential risks (Field & Hole, 2013; Schlabach & Peer, 2024), as seen in appendix 5, where they provided written consent, understanding their outlined rights as participants. This process ensured ethical standards and participant comprehension, contributing to the data collected and the study's integrity (Fischer, 2009). With this in mind, the following sampling

strategies are chosen to gather diverse insights from professionals and practitioners directly involved in the intersection of VA training and PE.

To fully consider the demands and needs of VAs, purposeful sampling (Field & Hole, 2013; Creswell, 2018), was employed to select five or six experts in the fields of exercise physiology, vocal training, and sports science based on the credentials in table 3. The criteria and high inclusion standards ensure that selected experts possess robust theoretical knowledge, practical experience, and professional recognition (Merriam & Tisdell, 2016) to gather credible, impactful data, significantly contributing to integrated practice for VAs (Warburton *et al*., 2011; Leavy, 2014). These experts were selected by reviewing literature and social media presence to ensure their qualifications and were sought out virtually to engage in the semi-structured interviews explained below. Ten expert professionals were contacted, but due to professional constraints and scheduling, only four were interviewed within three interviews (App.7). Luckily, these experts were able to share a plethora of information and experience, as delineated in the findings section, which was able to be triangulated (Saldaña, 2021; Flick, 2017) to develop the PER for VAs (App.15).

Rather than solely gaining expert insight, highlighting the perceptions and experiences of the VAs via PER implementation is paramount to the holistic aim of this study (Denscombe, 2003; Saldaña, 2021). Strict criteria for VA eligibility are delineated in Table 3 to gather consistent, reliable data (Harriss *et al*., 2019; Pauline *et al*., 2006; Schlabach & Peer, 2024) on tailored PERs' effects on vocal performance. Six healthy, professionally performing VAs from my studio were recruited to ensure a range of perspectives. Unfortunately, due to the time commitment and intensity of the PER implementation, only three VAs were willing or able to participate. From a research facilitation perspective, the small group was welcomed as I could provide more personalised feedback on form and modifications (Op den Akker *et al*., 2014; Ofli *et al*., 2016) throughout the month-long PER implementation phase. The findings section will further discuss the small sample size and its implications.

Table 3: Participant Criteria and Eligibility - ensures safety and ethical data (Leavy, 2014)

Expert	VA
• Advanced degree in relevant field • Professional experience with VAs or program development • Collaboration or research reflecting an integrated and collaborative approach	• Healthy performers between 18-45 • No underlying medical or vocal conditions (non-smokers) • Minimum three years of vocal training or professional singing • Commitment to add PE to their lifestyle or routine

To remain within the practitioners' scope (Pauline *et al*., 2006; Haff & Triplett, 2016; Schlabach & Peer, 2024) and adhere to ethical and resource restrictions (Israel, 2014; Harriss *et al*., 2019), this qualitative study involves healthy VAs without physical, vocal, or respiratory diagnoses. The initial intake survey (App.12), modelled with questions from the Physical Activity Readiness Questionnaire for Everyone (PAR-Q+) (Warburton *et al*., 2011; Harriss *et al*., 2019) for health and well-being analysis, was a deciding factor in VA participation. Due to practitioner scope, ethical limitations, and time constraints, if any health concerns arose on the initial survey, the VA's involvement would have been terminated from the study and referred to their general practitioner for further guidance (App.11). Fortunately, all the VAs willing to participate were healthy (S1 App.12) and able to continue with PER implementation, which is further considered in the data collection and findings sections.

Other data collection designs or literature review approaches would be less pertinent to this study as they may not adequately capture the complexity and contextual nuances (Kiteley & Stogdon, 2014; Snyder, 2019) necessary for understanding PER creation for VAs. Quantitative methods would likely reduce participants' rich, subjective experiences to numerical data (Field & Hole, 2013), overlooking the depth of insights critical for this study. Similarly, a systematic or meta-analytic literature review would prioritise existing empirical generalisations (Kiteley & Stogdon, 2014) over the inductive discovery of new themes and theories, potentially missing the diverse and context-specific knowledge that is vital for informing the research questions and PER development. The consequent section will note how the results of this study are derived and how they pertain to VA performance enhancement.

Data Collection:

The data collection process was carefully structured, using the values, research design, and ethical considerations discussed above to select methods that ensure a comprehensive and nuanced understanding of VAs' needs and experiences.

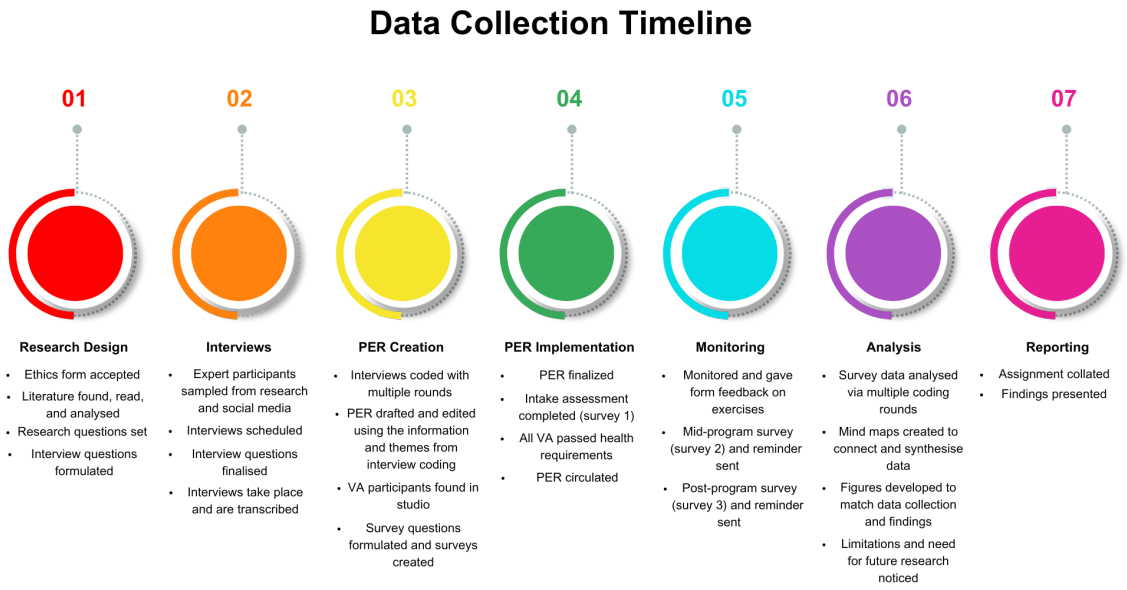


Figure 3: Data Collection Timeline (App.20 Figure 4) based on Research Timeframe (Figure 2)

A narrative literature review using inductive coding (Goulding, 2002; Fereday & Muir-Cochrane, 2006; Ferrari, 2015) was conducted to gather current information on PERs for VA as it allows for the emergence of themes and patterns directly from the data, facilitating the development of a theory that is deeply rooted in the nuanced experiences and practices of this specialised and emergent community. The preceding, extensive literature review was necessary as it provided the foundational framework for the entire project (Goulding, 2002), guiding the design, formulating interview questions, and cyclically informing the PER development.

Key Words:	Vocal athlete, vocal performance, vocal health, physical exercise, interdisciplinary collaboration, exercise science, laryngeal/skeletal bioenergetics, physical and vocal synergy, programming	Chosen to focus on vocal performance and PE intersection, holistic programming, and interdisciplinary work
Search Engines:	Google Scholar, JSTOR, ScienceDirect, ProQuest, EBSCOhost, ResearchGate	Chosen on academic rigour and the number of relevant papers accessible
Exclusions:	Non-peer-reviewed sources, outdated publications, and anecdotal evidence without practical application	

Table 4: Literature Review Development and Criteria

Using the terms, search engines, and exclusions above, this review ethically explored recent vocal training and sports science studies, forming a foundational knowledge base aligned with

research objectives (Paul & Criado, 2020) to inform expert discussions and PER formulation. Thematic coding and mind mapping (App.6) distilled key insights, ensuring the PER was informed by the latest effective practices (Castleberry & Nolen, 2018). From Kyngäs' (2020) suggestion, the themes and theories derived from the literature review were systematically integrated into the semi-structured interview questions, ensuring that these questions effectively elicited the expert participants' lived experiences, practical knowledge, and insights.

Expert Consultation:

Expert consultation involved undertaking semi-structured interviews, using questions (App.6) based on themes and theories from the literature review (Kyngäs, 2020), and consisted of forty-five-minute discussions on open-ended questions designed to explore tailored PERs and experts' experiences (Adams, 2015). Expert conversations were transcribed verbatim with filler words but without behaviour annotations (Saldaña, 2021). These transcriptions are coded inductively to develop a new framework, the resulting PER, via thematic analysis (Castleberry & Nolen, 2018). One round of reading with a thematic coding lens (App.7) was followed by an in vivo process (Leavy, 2014) (App.8-10) before developing and finalising themes. Using rhizomatic (Gravett & Winstone 2019) (App.20 Figure 6) coding, themes were connected to show the intertwined and complex findings and then attached to quotes for organisation and presentation (Gravett & Winstone, 2019).

Program Creation and VA Survey Evaluation:

The PER (App.15), developed from inductive themes insights gained through the literature review and interviews, was generated to apply the data derived from the expert consultations to enhance holistic VA training and performance. To ensure active involvement and track progression while capturing VA sentiments, thoughts and experiences, three qualitative, longitudinal, and semi-structured (Leavy, 2014) surveys were administered to VAs at different research points (Lynn, 2009) to saturate results (Leavy, 2014). An initial survey (App.12) established VA participation criteria and captured baseline health, previous experiences, expectations, concerns, and preconceptions, incorporating questions from the PAR-Q+ 2023 (Warburton *et al*., 2011) to ensure legitimacy and address ethical health concerns. Following the confirmation of the VAs' eligibility, the PER was introduced, and the program's framework, objectives, exercise methods, and key points were clearly outlined to them.

A mid-program survey (App.13), completed after the program's second week, gathered feedback on their ongoing experiences, adjustments to the regimen, and any emerging

improvements or issues. Throughout the month-long program, I was accessible to the VAs (Pauline *et al*., 2006), offering support during their weekly lessons to monitor and review exercise forms, provide tips, and discuss any challenges they encountered between surveys to mitigate health and safety concerns (Van Hoye *et al*., 2015; Schlabach & Peer, 2024). If any concerns arose, VAs would be referred to a qualified healthcare professional, ensuring that their well-being and safety are prioritised (Pauline et al., 2006). The post-program survey (App.14) collected detailed reflections on perceived improvements and overall satisfaction and suggested additions or refinements to the PER.

Data from these surveys were deductively analysed utilising in vivo and process coding (Saldaña, 2021) (App.12-14) using themes from the interviews, yielding valuable evaluation of and insights into the regimen's efficacy and evolution (Van Hoye *et al*., 2015) while ensuring VA opinions and experiences are authentically represented. Together, these methods provide a detailed and dynamic understanding of the survey data and are methodologically coherent to the study's objectives, essential for assessing the PER's impact and VA's holistic experiences.

Auxiliary Data Collection:

A detailed research and observation journal, excerpts structured using Kolb's Experiential Learning Theory (Kolb, 1984), documented VAs' exercise and voice training performance and practitioner experience (App.19). This supplementary data provides a comprehensive analysis and triangulation of lived experiences and reflections from all parties to note deviations, reduce bias, and spark hypotheses (Belaggoun & Djouima, 2024). This method was chosen as it allows for a richer, more detailed understanding of and connection between individual experiences within their specific contexts (Belaggoun & Djouima, 2024) by challenging the data and ensuring adherence to ethical constraints, overall enhancing the credibility and transparency of the research process (Almeida *et al*., 2021).

Ethical Considerations:

Ethical standards and insider research boundaries were paramount in this project's planning, implementation and analysis. The study adhered to established ethical standards, with the research proposal passing ethical review (App.1) and ongoing monitoring ensuring compliance. As the principal investigator, maintaining objectivity and ethical standards, with health rigour (Pauline et al., 2010; Schlabach & Peer, 2024), was crucial with insider research constraints (Denscombe, 2003; Leavy, 2014) mitigated by transparency (Fereday & Muir-Cochrane, 2006), confidentiality (Schlabach & Peer, 2024) and reflective journaling (Almeida *et al*., 2021). Participants were fully informed about the practitioner’s certifications and

the study's aims, methods, and potential impacts, provided written consent, and understood their rights to confidentiality, including withdrawal without consequence (App.5). To mitigate insider research biases (Leavy, 2014; Saldaña,2021), transparent reporting, regular reflective practices (App.19), and critical self-assessment were implemented to ensure objectivity and maintain the integrity of the research process and findings.

By leveraging expert insights and capturing VAs' experiences, the study aims to develop a specialised PER that enhances VAs' training, well-being, and performance longevity. To meet these aims, the carefully chosen research foundation, values, methods, diverse analysis procedures and rigorous ethical framework ensure the research's integrity while safeguarding participant interests and ensuring the validity and reliability of findings portrayed and discussed at length below.

Findings:

The culmination of the research values, design, literature review, methods, ethics and execution of this study will be discussed through content and thematic data analysis grounded in research objectives to reveal key thematic patterns and connections (Castleberry & Nolen, 2018). This section thoroughly examines expert and VA experiences surrounding the PER creation and implementation, noting its construction and efficacy. Drawing evidenced-based connections and conclusions will illuminate the implications of this research within the emergent field (Saldaña, 2021) and the limitations to address with further investigation. The findings will be structured to present the results from the expert interviews, followed by a discourse on the creation of the PER and an analysis of the VAs' thoughts and feelings on the PER, concluding with a discussion on its efficacy and areas for improvement.

Expert Interview Results:

It was apparent during the literature review that PE and its effect on vocal training requires more evidence-based understanding and implementation to meet the intense demands of performance genres. The experts, chosen by their experience shown in Table 5, discussed a myriad of topics that considerably informed my understanding of the field and, thus, the resulting PER for VAs.

Table 5: Expert Participants and Experience

Expert (E)	Experience
E1	Vocal Athlete Coach (voice focused)
E2	Personal Trainer for Vocal Athletes (PE focused)

E3	Movement Specialist: Strength and Conditioning, Functional Range Conditioning, Neurokinetic Therapy (PE focused)
E4	Vocal Athlete Coach (voice focused) and Researcher (PE focused with vocal lense)

Key themes, shown in Table 6, resounded throughout the interviews and emerged from inductive, thematic, in vivo, and rhizomatic analysis (App.20, Figures 6-7). The findings reflect a growing consensus on the importance of a broader, more holistic approach to VAc training that aligns with the complex needs of VAs, promoting their health and longevity.

Table 6: Expert (E) Interview Themes and *Subthemes*

1) Advocacy for VAs as Athletes
    a) *Necessity of PE Programming*
    b) *Genre-Specific Demands*
    c) *Myth-bust via Evidence-Based Research*
2) Program Creation Guidance
    a) *Health Information*
    b) *Structure and Exercises*
    c) *What to Avoid*
    d) *General Advice*
3) Unclear Information
4) Broader Scope

Advocacy for VAs as Athletes:

All four experts noted that VAs are athletes and need to be trained as such. The need for advocacy in integrating PE into VAc training emerged as a significant theme in the interviews. All experts highlighted the need for more general awareness and support of this holistic approach within VA training and performance. There is a strong call for vocal coaches, VAs, and the wider field to advocate for including physical fitness in VA training at various levels (E2) to "navigate different bodily and technical aspects…[via] knowledge of the body and athletics and science and biomechanics…[to] reach their full potential" (E3, p.92). By doing so, we are "invest[ing] in [VAs] and…in the future of what we do [for VAcs]...[As a coach, the goal is to] be able to guide them to make the healthiest choices for them and their craft" (E4, p.100). This advocacy promotes a healthier approach to vocal training and ensures that VAs are equipped with healthy and sustainable tools needed to "foster a connection with the full singing body" (E4, p.100). In tandem with the necessity of VA training, genre-specific clarity, busting myths through continued research, and broader implications for the field of VA training, this advocacy can

foster a new generation of VAs who recognise and understand the importance of PE conditioning incorporation within vocal training and performance.

Necessity of PE Programming:

A common theme throughout the expert interviews was that PE for VAs is beneficial and necessary for modern performance, as well as the advocacy for a healthy and balanced career-focused lifestyle (E4). “Singing is a set of physical conditions…[a] skill acquisition coordination process…[yet VAs] are often used to standing still and focusing on precise breath control…and posture” (E4, p.103) in the voice studio. E2 mentioned that a majority of VAs they work with don’t know what they’re doing movement-wise, “so they really don’t have a baseline body awareness at all…they don’t know what their posture looks like…and it’s very apparent” (p. 87). Furthering this point, E1 stated that VAs might be “seemingly kinesthetically aware from what they can do on stage, [but] it’s often a ‘fake it till you make it’ way that they got there” (p.89), rather than structured upregulation and maintenance of the strength (Orlikoff, 2008; Ray *et al*., 2018), stamina (Ray *et al.,* 2018; Wilson *et al*., 2012), and flexibility (Petterson & Westgaard, 2004) required. As a whole, “vocal performance…is…super taxing on the body and [it is necessary]…to harness [the] body instead of experiencing a lot of fatigue…[strength training tools]…foster a connection with the full singing body in a healthy and sustainable way with using…exercise science and physical exercise” (E4, p.100). E3 agrees on the necessary body upregulation stating that for productive training and high-level performance, VAs’ muscles “need to be turned on…and connected to the brain and the vocal body” (p.99).

The goal is “making sure vocalists [and coaches] understand the real benefits of incorporating strength training and aerobic exercises into their routine. It's about supporting your voice for the long haul…ensuring you can perform at your absolute best” (E4, p.109) while “enhancing your muscles’ use of oxygen, which is crucial for maintaining…function under pressure” (E3, p.99). “If you can have [a VA] become more aware with their body…you’ve given them a lot” (E2, p.87). Lastly, E4 mentioned how coaches must require knowledge of the full vocal body system in order to train VAs effectively. Since many exercise professionals lack this understanding, this dual scope is necessary. “Singers should have different fitness goals and training programs…focusing on strength, mobility, flexibility and lean muscle mass rather than…muscle building” (E4, p.104) that is typically seen in programming from fitness professionals without laryngeal and VA awareness. This overarching message underscores the need for a paradigm shift in VA training approaches, advocating for integrated and

comprehensive training methods for coaches and VAs to enhance performance and overall well-being.

Genre-Specific Demands:

Experts 1, 3 and 4 also discussed the necessity of understanding the varying demands across specific vocal genres, underscoring the need for genre-specific awareness in VA training and PE programming. For instance, “VAs with a background in classical singing…tend to have specific needs that are different from…those in musical theatre” (E3, p.94). This is analogous to sport-specific training requirements with sports athletes (Andersen & Aagaard, 2010). E1, talking about triple-threat VAs, or “artists [who] are required to sing, dance, and act” (Morton, 2020, p.295), are rare and “they feel weak in one or more of the other [areas]” (E1, p.89). This idea is reinforced by Morton’s (2020) argument stating that triple-threat performance requires “conflicting body alignment and muscle recruitment…[yet despite this,] programs continue to offer separate skills training” (p.296), which can lead to injury, rather than integrated programming. In terms of genres, E3 coins them as “high velocity, high duration but low load sports” (p.96), and with the “right balance…exercises are functional and directly related to the demands of…performance” (p.96). E3 and 4 go into more detail on how each VA training should “mimic their stage movement” (E4, p.105), “so when they’re under stress and load, they can manage (p.106) without risk of injury or compensation. Both experts 3 and 4 mentioned that classically focused VAs need to incorporate exercises specific to slow-twitch muscle fibres or aerobic muscle fibres to minimise tension and enhance control over long phrases (E3; E4) and to upregulate “low load tissue tolerance…and lower chances of support compensations” (E3, p.94). On the other hand, musical theatre-concentrated VAs must “sing and dance simultaneously…[and require] cardiovascular endurance and strength…to move fluidly and sustain” (E3, p.96) and must “focus on fast-twitch muscle fibres [that] help with explosive movements and stamina” (E4, p.105). Overall, “understanding…the specific demands of their genre…[the] different set of challenges and strengths compared [to other genres]...helps [coaches] create…effective…[and] sustainable…training programs” (E3, p.105). Although the study's small design, constraints, and VA accessibility prevented the PER from being genre-specific, this opens up opportunities for future research to explore tailored approaches in greater detail. It is highly hypothesised that aligning physical training to genre-specific needs will result in greater performance mastery and longevity of VA vocal and physical health.

Myth-bust via Evidence-Based Research:

Interviews also noticed that advocating for VAs included the importance of dispelling common myths to ensure accurate information guides effective training strategies. A prevalent misconception is that VAs can achieve peak performance solely through vocal practice (E4), neglecting the physical demands of their craft. The voice is part of a more extensive system and must be upregulated to avoid vocal strain, tension and injury while enhancing control, stamina, agility and recovery (E4). On the flip side, myths of strength training and cardiovascular training being "harmful to the voice" (E3, p.99) due to tension being inherently bad (E4) were dispelled by E3 and E4. "it is important to understand that unfamiliar movement patterns cause excess tension or stiffness. This is because the body must expend…more resources to adapt to new movements and will manifest in more tension, soreness and nervous system fatigue" (E3, p.98). "Tension development is…useful in the voice…[as a variety of] techniques…need structure and [relative] pressure as much as relaxation. Structure of the body…needs tension, so strength training…[allows] the vocal body...to stay steady...under pressure" (E4, p.108). In the same vein, E1 mentions that VAs "have to know what it feels like to be tense…to know what it feels like not to be tense, and then find the middle…[VAs] can't strain within [the] voice, but sometimes…[it's] okay with knowing what [the] boundaries are. That sort of kinesthetic awareness" (E1, p.91). These findings make it clear that a fresh breath of holistic and evidenced-based advocacy needs to be introduced to the field to reframe the understanding of balanced exercise form effects on tension and successful VA training.

Program Creation Guidance:

To meet the performance demands and VA needs delineated above and throughout the literature review, information on program creation derived from expert surveys offers valuable insights into the key elements that shaped the PER. Results encompass expert recommendations on gathering health information, structuring and prescribing exercises, aspects to incorporate or avoid, and general advice. These findings provide a foundational understanding of the evidence-based practices that informed the design of the PER implemented into VA training for performance enhancement.

Health Information:

The importance of gathering and handling health information through thorough intake and assessment processes emerged as a crucial foundation for VA training that ensures safety, efficacy, and well-being (Haff & Triplett, 2016). Experts unanimously agreed that gathering comprehensive baseline information is essential to develop a well-rounded, ethical, balanced and personalised training regimen (E1; E2; E3; E4). The intake process is the foundation for

understanding each VA's unique background, and while each expert had their own method for conducting intakes, several common, critical themes were identified. Physical movement assessments (E2; E3) and vocal evaluation (E1; E4) are conducted, and collaborative discussions on past training experiences (E1; E4), previous injuries (E1; E3), lifestyle (E2; E4), performance demands and schedule (E3; E4) and overall goals (E3), allow for a tailored physical and vocal conditioning approach to programming. E3 mentioned that the “body is a map of the individual’s history” (p.93), so a “full [vocal] body scan” (p.94) must be connected to the VA’s background intake information to gain an encompassing overview of health and well-being to plan how it can be regulated through training.

Structure and Exercises:

Valuable insights regarding the structural and exercise elements of program creation for VA training were gained during expert conversations. E3 mentioned that they program “just like [they] would a professional athlete” (p.93) and that the ESPs of specificity (E2; E3) and progressive overload (E2; E3) should be applied so exercises are “balance[d],...functional, and directly related to the demands of…performance” (p.93) to develop and upregulate the vocal body overtime while preventing injury. Programming should be structured to be relatively simple (E2), form-focused (E4), controlled (E2), and accessible (E2), with exercises focusing on endurance (E2), strength stimulation (E3), relaxation (E3), recovery (E4), flexibility (E4) and fatigue resistance (E3). Overall, program scheduling for VAs should pay attention to routines and demands, making sure to have lighter exercise on performance days to avoid fatigue (E4) and follow a pattern of “tension simulation and tension reducing [days to]...not overwhelm…vocal practice” (E3, p.96) or the body. Other general aspects, such as prescribing repetition, proper form checks, and progress tracking, were mentioned and will be discussed in further sections.

Specific exercise forms, movements and their intended effects on the vocal body were discussed. Integrating strength training (E2; E3; E4), cardio (E3; E4), core work (E3), flexibility and mobility (E4), and recovery exercises (E2; E3; E4) are necessary to develop balanced vocal and physical power and structure. E2 mentioned that “You can’t have the exact same type of exercises that you would do in a normal group fitness class” (p.86) or personal programming. Each exercise must have a vocal and career focus to ensure specificity and efficacy. Overall, “training upper and lower body, core, and cardio is to help resist fatigue onset…and this will…greatly extend vocal endurance and lower chances of…compensations during the stressful performance” (E3, p.95)

In terms of strength training exercises, tempo-based (E3), heel-elevated (E3), isometric (E2), side-lying (E3; E4), unilateral (E3) and alternative lift exercises (E3) were recommended for upper body, lower body, and core movements. These exercise categories help decrease pelvic floor tension (E3), increase range of motion (E2; E3), allow for different postural stances (E3), relax the ribcage for dynamic inhalation capacity enhancement (E3), promote thorax and pelvic expansion (E4) and "boost…oxygen utilisation rate to preserve function under stress" (E4, p.106). Squat (E2, E3, E4), deadlift (E4, E3), lunge (E3), row (E3), press (E3), and plank (E3, E4) positioned exercise patterns are beneficial, if correctly executed, for VA training. With these exercises, it is paramount that "pushing exercises [be] complemented by pulling exercises to prevent muscle imbalances" (E4, p.102). In terms of repetitions of these exercises, different ranges should be used, mainly focused on "lower repetitions with alternating activities…[but generally] be[ing] mindful of what stress the body is under so that it doesn't get in the way of…demands" (E3, p.97).

Cardiovascular training with nasal breathing (E3; E4), including steady-state aerobic cardio and short aerobic intervals (E4), or Alaric threshold sprints (E3), were suggested to boost elasticity (E3), explosiveness (E3) and endurance (E2), vital for sustaining long performances without fatigue. Nasal breathing (E3; E4) and steady-paced tempo (E3; E4) are essential for VA regimented cardiovascular exercise in order to "not become fully anaerobic" (E3, p.98) and lose sight of VA performance demands. Aerobic cardiovascular conditioning can be in various forms: e.g. running (E2; E3; E4), jogging (E2), sprinting (E3; E4), jumping with or without a box (E3), skipping (E3), biking (E4).

Flexibility, mobility and relaxation exercises were deemed essential for maintaining a full range of motion and to "keep the muscles supple…prevent[ing and releasing] any tightness" (E4, p.108) that can hinder performance. This can be tied into a physical, vocal, or integrated cool-down (Ragan, 2020) to support holistic training and recovery. It was also noted by E1 that "yoga…is the number one thing you're possibly going to ever be able to do for the longevity,... sustainability,... quality and resonance of your voice" (p.89), which was also suggested by E3 and E4. This can also be done by full-body stretching (E4), foam rolling (E3), and post-workout dynamic breathing (E3), which serve as mindful recovery tactics as well.

Experts also stressed the importance of integrating exercise science principles (E2) of progressive overload and specificity (E2), recovery strategies (E3; E4), and making appropriate modifications (E2) to the program as needed. This ensures that performers are not only building strength and endurance but are also allowing their bodies time to recover and adapt (E3; E4) in

a healthy manner, reducing the risk of injury (E2; E3; E4) and burnout (E4). These findings collectively accentuate the necessity of a carefully tailored approach to program creation that supports the VA's overarching physical and vocal health.

What to Avoid:

In addition to program creation suggestions, experts also gave crucial guidance on exercises and approaches to avoid in programming. A key recommendation was to prevent excessive intra-abdominal pressure (E4) via bracing and Valsalva techniques commonly found in heavy weightlifting. Holding one's breath or grunting while exerting force causes undue pressure on the vocal folds and can lead to potential harm (Chandler, 2022; Rumbach *et al.,* 2019). Similarly, experts advised against exercises that generate excessive pressure and compression on the ribcage (E3), particularly those that involve heavy, slow lifts with weight stacked on the shoulders. Anaerobic cardiovascular exercises were also stressed as potentially problematic by E3. While beneficial in specific contexts, they can lead to excessive fatigue and strain and have little avail for VA demands (E3). E3 mentioned programs that lack repetition and regulation, such as high-intensity interval training (HIIT) and heart rate zone-focused workouts, similar to widely popular group training classes (McCall, 2019), are ineffective for VA training. Without consistent repetition and progressive overload, these workouts fail to support the gradual improvement and upregulation needed for functional VA training (E3). Finally, experts (E2; E3; E4) stressed the importance of pacing the training appropriately. Starting too fast or pushing the body too quickly can hinder necessary regulation and adaptation processes, preventing adequate progress and increasing the risk of injury, soreness and inconsistency in VA adherence (E2). These findings highlight the need for careful, informed programming that avoids practices detrimental to both the voice and the body, ensuring a safe and sustainable path to VAc excellence.

General Advice:

Experts shared vital and overall advice for developing and refining a VAc PER, emphasising the importance of adaptability (E2; E4) and continued movement improvements (E3), which includes variety, adaptation, modification, and progression. Experts recommended starting slowly (E2; E3), allowing the body to adapt to new routines gradually and for the regimen to be individualised to the VAs unique background and skill set. This approach helps prevent injury (LeBorgne & Rosenberg, 2018) and ensures that VAs build a solid foundation (E2) before progressing to more challenging exercises. E4 stressed that listening to the body is a crucial principle advising VAs to pay close attention to signs of fatigue, strain, or discomfort

and for coaches to be conscious of this to adjust training accordingly (E2). Further, the interviews underscored the need for future research to improve tracking methods (E1; E2) and expand the impact of VA training on a broader scale. Experts noted that there is still much to learn about the most effective ways to measure progress (E1; E2) and outcomes in this unique field. They encouraged pursuing studies that could provide more precise data and insights (E1; E2), enhancing the ability to tailor programs to individual needs and measure their effectiveness. This study serves as a cue for the ongoing exploration of how best to track and assess the impact of VA training. The findings suggest that while we have a strong foundation, there is still much to uncover about the most effective approaches, making this an exciting and evolving study area with the athlete at the centre (Fagan *et al.*, 2017).

Unclear Information:

It is also pertinent to note the unclear and differing recommendations that emerged (Kirkpatrick & Kirkpatrick, 2016), underscoring the field's complexity, variability and disputation. The discrepancies below accentuate the ongoing challenges in developing a standardised, evidence-based approach to PER integration for VAs in an ever-evolving, emergent field. For example, some experts consider HIIT exercises and workouts beneficial (E4) for endurance and stamina. In contrast, E3 warns it may cause excessive fatigue, and breathing issues, and is untransferable to aerobic VA demands. Similar variability exists in exercise selection, such as programming (E4) or avoiding deadlifts (E3) and squat variations (E2; E3). Each exercise has strengths if done correctly and mindfully, but to what length they will help improve VA performance and general health is unclear from expert interviews. These differences note the need for more research, particularly in tracking exercise effectiveness and performance outcomes (E1; E2), with a VA scope. Evidence-based tools and performance evaluation processes are crucial for refining training practices (Kirkpatrick & Kirkpatrick, 2016; Harris *et al*., 2018). The need for further research is evident (E1; E2; E3; E4), reinforcing the importance of studies like this one to bridge gaps in knowledge and refine best practices. As the field evolves, ongoing research and adaptation will ensure VA training remains effective and safe for performance enhancement.

Broader Scope:

Lastly, the Experts revealed a broader vision for future holistic VA training with PE and overall well-being as core components. This approach not only promotes enhanced vocal performance readiness and longevity (E1) but can reduce injury risk (E2), burnout (E4) and

fatigue (E3). The broader scope also includes the potential for more extensive interdisciplinary collaboration (E1; E2), where voice coaches, fitness trainers, nutritionists, physiotherapists, psychologists and other health professionals create comprehensive lifestyle training programs for practical VA use. By expanding the field in this way, VA training can evolve to meet the diverse needs of performance, with the voice, body and mind at the forefront, ensuring VAs are physically, vocally and mentally prepared for their craft.

PER Creation Process:

A month-long PER for VAs (App.15 p.143) was developed by integrating key themes and insights meticulously coded from expert interviews, knowledge from the literature review, details from practitioners and my CPT expertise. This triangulation ensured that the final PER addressed crucial elements such as accessibility, modifiability, and progressive overload. Following expert recommendation, the regimen was structured around five workout days - three “tension stimulating” and two “tension releasing” (E4, p.96) - that corresponded to the VA’s daily vocal routine. This five-day split was complemented by two active rest days for recovery. Each session incorporated warm-ups, dynamic pre-breathing exercises, mobility work, strength and resistance training, cardiovascular conditioning, core development, and flexibility and recovery-focused cool-downs, with optional vocal function exercises. The PER was developed and coded (App.15) to explicitly show which elements were drawn from expert interviews, ensuring that the program was grounded in both practical expertise and evidence-based research.

VA Survey Results:

Findings garnered from the three VA surveys, taken by the three healthy, professionally performing VAs, provide critical insights into their lived experiences, directly informed by the interview results and the PER creation process. These results reveal the training program's interconnectedness with the VAs’ history, goals, difficulties, and improvements across physical, vocal, and mental dimensions, as well as their advice on broader field integration and accessibility. This comprehension examination portrays the PER’s positive and negative impacts and offers guidance for future applications and studies within the wider VA community and field.

Table 7: VA Survey Themes and *Subthemes*
1) Intake Survey (S1) *a) Baseline and Prior Experience* *b) Goals*

2) Mid-PER Survey (S2)
    a) *Vocal Experience*
    b) *Physical Experience*
    c) *Mental Experiences*
    d) *Challenges*
3) Post-PER Survey (S3)
    a) *Vocal Outcomes*
    b) *Physical Outcomes*
    c) *Mental Outcomes*
    d) *Overall Advice and Sentiments*

Intake PER Survey (S1):

The initial intake PER survey provided a comprehensive foundation for understanding each VA's baseline health, prior experience, and personal goals. Health assessment-focused questions, based on the PAR-Q+ (Warburton *et al.*, 2011), were instrumental in determining physical readiness and VA eligibility (S1, Qs 1-3, 6 & 9), and all participants were successfully cleared for study involvement (App.14). While some VAs disclosed underlying conditions such as asthma (S1, VA1) or allergies (S1, VA3), their eligibility was not impacted due to the management and seasonal aspects described and their responses to other health-focused questions. By evaluating prior experience, the survey provided a clear understanding of each participant's perceived vocal and physical condition (Q7&8), performance demands (Q4), and their aspired goals and intentions (Q10) - whether physical, vocal, or well-being focused - to achieve following study completion.

Baseline and Prior Experience:

Diverse VA baseline information was gathered during S1. VA1, a musical theatre and CCM singer with 15 years of experience engages in circuit/HIIT training, jogging or walking, and workout and dance classes 3-4 times per week. This VA rated her vocal health at 9/10, indicating a high level of confidence in their vocal condition, while her physical health and fitness were rated at 7/10, reflecting a moderate level of physical wellness and fitness.

In contrast, VA2 has 10 years of performance experience and 5 years of professional work. VA2's exercise routine includes gym sessions 3-5 times per week, depending on consistency and motivation. This VA rated their vocal health at 9/10 and physical health at 8/10, suggesting strong self-reported well-being and physical fitness.

VA3, who has been operatically trained for 6 years and is currently exploring other genres, reported recent inconsistency in exercise routines. Previously involved in running and gym workouts, VA3 is now seeking a new fitness regimen. They rated their vocal health at 8/10 and physical health and fitness at 7/10, highlighting a need to reestablish a consistent exercise routine to support their vocal and physical health.

Understanding these baseline assessments and previous vocal and physical experience provides a benchmark for tracking VA progress over time. By comparing these initial metrics with subsequent survey evaluations, the overall efficacy of the PER in enhancing performance and health can be gauged, ensuring the program remains effective and responsive to each VA's needs and aspirations.

Goals:

The main goals were popular and focused on throughout the intake survey results. Interestingly, most were non-physically focused (S1, VA1; VA2; VA3). This likely stems from the artistic and career-driven mindset that VAs have cultivated throughout their performance professions (Lingo & Tepper, 2013). Overall, the goals were centred around meeting general VAc performance demands. However, specific goals can be categorised under vocal, physical, mental, and well-being focus. Vocally, VAs desired performance enhancement via core strength underscored by breath support, vocal control, stamina and endurance for long performance stints, flexibility and agility in their ranges, and postural alignment of the vocal body. The only physical aspect derived from a vocal lens is the core strength and awareness mentioned to upregulate breathing. The other main focus of VA goals highlighted in the intake survey was the intention of confidence (S1, VA3) and comfort via released tension (S1, VA2) through a process that is maintainable (S1, VA1) and progressive (S1, VA1) through ESP and evidence-based programming. After the eligibility of VAs was confirmed, the PER (App.15) was introduced to the VAs and the structure, objectives, exercise form, and critical considerations were explained.

<u>Mid-PER Survey (S2):</u>

The mid-PER survey focused on assessing VA participants' adherence to the program and their progress in the first two weeks of implementing the prescribed exercises. It explored their ongoing vocal, physical and mental experiences, as well as the improvements and challenges they observed midway through the programming. The findings from this survey reveal how VAs were adapting to the program while accentuating any adjustments needed to ensure continued progress.

Vocal, physical and mental improvements began being reported in the mid-program surveys, especially from the VAs with higher adherence to the exercises and programming schedule (S2, VA3). With the help of form tips and modifications (S2, VA1), more engagement, confidence and comfort were reported (S2, VA3) and were taken as possible indicators or led to vocal and physical improvements to come. Multiple VAs also reported their body being more grounded (S2, VA1), having more energy (S2, VA2), and being “activated for work” (S2, VA1) to tackle singing tasks. VA1 appreciated the balance of the program, specifically the lower and higher vocal demand days, noticing that the varied intensity, based on the corresponding PE workout, helped maintain vocal health while still progressing their training (p.131).

Vocal Experiences:

Vocally, breathing improvements were prevalent in the mid-program surveys, with VAs reporting sustainability in breath (S2, VA1), breath control and stamina (S2, VA2), new breath awareness or sensations (S2, VA2), flexibility (S2, VA2), projection (S2, VA1) and energy (S2, VA3) to sustain (S2, VA1) phrases. This was primarily marked by increased core strength and engagement with the dynamic breathing and abdominal exercises programmed in the PER. Other significant vocal results in the mid-program survey were the reports of flexibility and freedom of the vocal range (S2, VA1) and confidence in the vocal body (S2, VA3).

Physical Experiences:

During mid-program surveys, VAs reported significant, though non-visual, physical improvements. With modification and form tips where necessary, many noticed an increase in consistency with the program (S2, VA3) as well as decreases in soreness (S2, VA2; VA3), with better recovery times (S2, VA1) seen by being less winded after sprints (S2, VA1). Increased activation, engagement (S2, VA1; VA3) and stability (S2, VA1) of key muscles left them feeling more stable yet flexible (S2, VA2) with their bodies and better prepared to undertake singing and performance work (S2, VA3). VAs also reported increased physical stamina, experiencing less shortness of breath (S2, VA1) from sprint training and lower energy drain (S2, VA1) during and after workouts. They felt more grounded and upregulated (S2, VA1! for both physical and vocal demands, with many able to complete and adhere to workouts more effectively (S2, VA2; VA3), with heavier weights (S2, VA1), reflecting their progressive overload, growing strength and competency with the programming.

Mental Experiences:

Mentally, VAs described a sense of energised confidence and comfort (S2, VA3) following the consistency of the programming (S2, VA3) and expressed their hopes to

experience more physical and vocal changes to follow. A sense of accomplishment, control and progress (S2, VA2) was also noted while being able to prioritise the PER integration into hectic routines and performance schedules. VA2 noticed that performing all five programmed days was beneficial. They mentioned, “the lighter days helped me, and [only performing the hardest workouts (S2, VA2) due to time restraints] was a mistake I made on week one” (p.133). The two lighter and more relaxed workouts ended up helping VAs to recover and decrease soreness (S2, VA2) while also helping consistency and dedication (S2, VA2). This, along with VA accounts of vocal and physical groundedness and preparedness described above and the mental clarifying effects general PE has been proven to provide (Purcel *et al*., 2019), mark positive trends for mental well-being results and benefits from this PER integration for holistic VA training protocols.

While these vocal, physical, and mental improvements highlight the regimen's success at the mid-program mark, it’s equally important to address the difficulties VAs face. These challenges provide invaluable insights for refining and enhancing future training protocols and any immediate adaptations or modifications to ensure VAs' safety.

Challenges:

Prevalent in the mid-program survey, VAs faced difficulties adjusting to the PER demands (S2, VA 3) and exercise form (S2, VA1; VA3) while also trying to fit it into their existing routine (S2, VA2). New movements and programming as a whole is a learning curve experience expected for this study, but soreness (S2, VA2; VA3) and form confusion (S2, VA1; VA3) were not anticipated as much. At this point, after the first and second weeks of programming, the form was reviewed, and VAs were asked about their experience with the exercises and recovery. With tips and modifications, it was noticed that during the form check-in and discussion during their lesson (V2), there was more exercise adherence (V2), sense of stability (S3, VA1), accomplishment (S2, V2), and improvement (S3, VA1; VA3), accompanied by more confidence (S3, VA3), comfort (S3, VA3) and recovery (S3, VA2; VA3), which will be analysed in more detail below.

While distinct in their data and outcomes, the mid-PERand post-PER surveys are closely linked in their explorations of participants’ experiences across vocal, physical and mental well-being domains. Both surveys addressed the three sub-themes, vocal, physical, and mental, capturing VAs’ ongoing experiences, difficulties, and improvements they observed throughout the program. To illustrate the progression and process undertaken, the survey results will

emphasise the evolution of VAs' experiences. A more detailed examination of the post-survey findings will provide additional insights into the final stages of PER implementation.

Post-PER Survey (S3):

The post-survey results emphasise the growth and experiences observed between surveys, particularly in the same sub-themes of vocal, physical, and mental well-being discussed above. Additionally, these results incorporate participants' overall perceptions, suggestions, and guidance for broader field integration, including accessibility factors and future directions regarding incorporation, resources, research, and community development. Generally, VAs reported significantly positive experiences with the PER (S3, Q1), with all VAs' responses indicating a satisfaction level above ninety percent. Additionally, all VAs expressed the desire to continue PE training (S3, Q8), noting "the benefits…are undeniable" (S3, V1, p.137), and it has become a part of their lifestyle (S3, V2) and routine (S3, V2). This is also reiterated in the vocal, physical and mental advancements and refinements delineated in the post-program survey findings below.

Vocal Outcomes:

Vocally, all VAs disclosed an increase in their vocal health status from the intake survey (S1, Q7) to the post-program survey (S3, Q3). Although this is merely self-pronounced progress (Leavy, 2014), it is still positive news for the efficacy and safety of the PER for VAs. Significant improvements in breath control, wider vocal range (S3, VA3) and overall stamina were also noted by VAs. They reported enhanced dynamic breathing, core strength, and structure stability, factoring into intensified sustainability of phrases, posture, flexibility (S3, VA2) and consistent tone quality across their ranges (S3, VA2). VA2 expressed that the breath support and dynamic exercises had become "second nature" (p.139), leading to quicker vocal and physical recovery after intense sessions. Overall, VAs felt their voices were more engaged or activated, powerful, healthier, and possessed more stamina, allowing them to be prepared to perform at a higher, upregulated level.

Physical Outcomes:

Physically, the post-program survey revealed unanimous positive physical improvements among VAS. Participants reported increased muscle tone (S3, VA2; VA3), which contributed to enhanced core strength (S3, VA2), better posture (S3, VA2; VA3) and thus improved vocal breathing and projection (S3, VA3). VA3 noted a newfound awareness and sensation of their breathing technique, and VA2 mentioned that the dynamic breathing "techniques…have become second nature" (p.139). The PER and practitioner emphasis form improvement and

modifications, supported by continuous feedback (Van Hoye *et al*., 2015). This led to participants noticing greater control (S3, VA2), skill acquisition (S3, VA1), and flexibility (S3, VA2). Subsequently, VAs experienced decreased rigidity (S3, VA2) soreness (S3, VA3) between the mid- and post-program surveys, reducing neck and shoulder rigidity (S3, VA2) and reducing tension during recovery (S3, VA1; VA1). They also expressed increasing comfort, enjoyment, and development with sprinting exercises, feeling less winded (S3, VA1) and having energy reserves left after workouts (S3, VA3), which carried through into their daily lives with sustained vitality throughout the day (S3, VA2) - helping them feel accomplished (S3, VA3), confident (S3, VA1), and comfortable (S2, VA3).

Mental Outcomes:

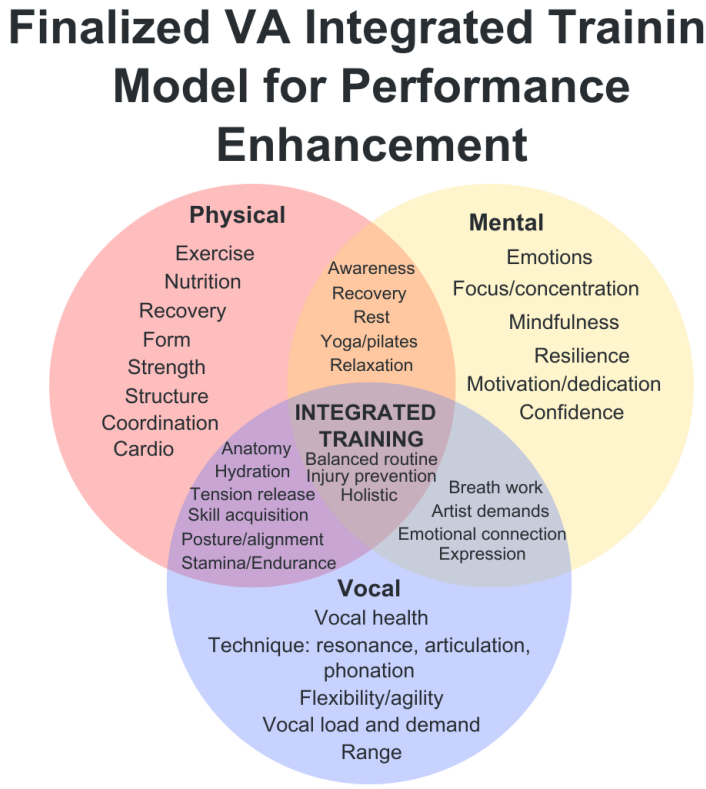
Reflecting this sense of comfort (S3, VA3), confidence (S3, VA1), progress (S3, VA1, VA3) and accomplishment (S3, VA2), the post-program survey findings show significant improvements among VAs. VA2 reported that their dedication to the program became a driving force behind consistency “instead of relying on [lacking] motivation” (S3, VA2, p.139). This mindset shift fostered a more resilient and committed approach to their training and lifestyle. The consistency (S3, VA2) in their training and the positive impact on recovery (S3, VA3) further reinforced their mental resilience, contributing to an overall sense of well-being and readiness to tackle both physical and vocal challenges with greater assurance (Purcell *et al*., 2019). Lastly, all VAs expressed their intention to continue using VA-tailored programming after completing the month-long PER created for this study (S3, Q8). The positive impacts on their vocal, physical and mental well-being convinced them of the program’s value in sustaining and enhancing their skills. The PER improved their immediate technique and performance and provided them with a framework and knowledge they could experiment with and integrate into their ongoing routines (S3, Q8). This commitment to continuing underscores the lasting benefits of a holistic approach to PE-equipped VA training to support long-term performance success via knowledge and experience.

Overall Advice and Sentiments:

VAs also provided valuable thoughts and advice for future PERs and the integration of PE training into the broader VA performance field. They emphasised the need for more accessible information and resources, including a comprehensive form library with exercises (S3, VA1; VA2), cues and video instruction (S3, VA2). They also suggested offering different starting points (S3, VA2) or “intensity levels…[to accommodate] different fitness stages” (S3, VA3, p.141), along with a more extensive variety of exercises (S3, VA1) to keep the training

fresh and engaging. VAs also accentuated the importance of incorporating a science-based perspective (S3, VA1), linking evidence-based practices in nutrition and lifestyle (S3, VA3) to the VAc field and regimen. Ultimately, VAs stressed the substance behind building a supportive community (S3, VA1) within PE and VA integrated training to foster social connection (S3, VA1), share resources (S3, VA3) and promote accountability (S3, VA2) to help individual VAs stay committed and informed. These findings have informed the development of Framework 3 below, designed to enhance training by addressing the multifaceted demands of VAcism and incorporating the crucial elements identified throughout this research.

Framework 3: Finalised VA Integrated Training Model for Performance Enhancement based on Expert Insights



Discussion:

The profound VA requirements and difficulties delineated above show insight into the multiple dimensions of VAc training. The intertwined findings suggest that integrating structured PE into VA training can significantly enhance the physical capabilities, vocal performance, and mental resilience of VAs, as portrayed and finalised in Framework 3. This model is loosely based on Purcell *et al*. (2019) model for elite athlete mental health and Fagan *et al*. (2017) frameworks on person-centred approaches and keeps the VA's holistic needs, health, well-being, and longevity at the forefront of training. This holistic approach to VA training marks

a pivotal shift in the field, acknowledging the symbiotic relationship of holistic physical, vocal, and mental well-being.

It is crucial to recognise that the framework and PER developed in this study are not rigid or definitive solutions but rather starting points in an evolving field. Flexibility within the framework is essential (Shannon & Zizzi, 2017), allowing it to adapt to the unique needs of individual VAs and the varying demands of different performance contexts. This iterative process ensures that training methods remain relevant, effective (Kirkpatrick & Kirkpatrick, 2016), and responsive as new advancements between physical exercise and vocal performance arise (Lawrence, 2022). VAs and their coaches must remain open to new evidence (Cranton, 2006) and education, continuously seeking clarity and improvements in training practices. By fostering a culture of inquiry and adaptability, the field can move towards more precise, personalised, and effective approaches to supporting the health and performance of VAs.

For the VAs themselves, the study's findings indicate that even those accustomed to less regimented forms of physical training can experience substantial improvements when introduced to a structured program (S1; S2; S3). The reported enhancements in form and structure, breath control, stamina, muscle tone, and mental resilience illustrate the transformative potential of this approach. The fact that all participants expressed a desire to continue with the VA-tailored programming post-study further highlights the perceived value and effectiveness of the regimen. The study provides evidence that structured physical exercise should be more widely adopted as a standard practice within the field (Byrne, 2020). The suggestions from VAs for greater accessibility of resources, such as form and video libraries, varying levels of exercise programming and diverse movement types, suggest that there is a growing demand for more comprehensive and inclusive training tools (Friedlander & Dawson, 2006; Friedlander, 2018; Ragan, 2020). Furthermore, the call for a science-based perspective that integrates sleep, nutrition, and lifestyle factors into vocal training points to a broader, more holistic understanding (Lawrence, 2022; Nesbitt, 2023) of what it means to train a VA as a whole. While these findings underscore the substantial benefits of integrating physical exercise into vocal training, it is essential to acknowledge the study's limitations.

Limitations:

Several limitations must be acknowledged in this study. Firstly, all VA clients had previously worked with me in a vocal capacity, which introduced bias as they were already familiar with my methods and advice, potentially affecting their responses to the PER via confirmation bias (Roulston & Shelton, 2015). Before this study, VAs in my studio were provided

with exercise suggestions and tips but were not given specific exercises or programming. This may have influenced the thoughts and perceptions (Roulston & Shelton, 2015) of VAs and the resulting survey responses.

Another significant limitation, characteristic to qualitative study, is the absence of a control group (Maxwell, 2008), which raises concerns about the quality of the findings. Without a control group, it is challenging to determine whether the observed outcomes were due to the PER or other external factors. The varying fitness levels of the VAs further complicate the interpretation of the results, as differences in baseline physical conditioning could have influenced how participants responded to the exercise regimen. Furthermore, since no widespread, evidence-based programming is available (Friedlander, 2018; Byrne, 2020; Chandler, 2022), VAs had no external benchmark for comparison, which may have impacted their assessment of the program's effectiveness. The generalisability of the findings is also of concern, as the study's focus on a small group of VAs and short time period may not extend to all VAs or across all genres for longer periods (Leavy, 2014), which may have different demands and outcomes. While immediate improvements may have been noted with the VAs present, the sustainability of these gains over an extended period remains unclear. Future studies should consider longer-term follow-ups to evaluate whether the benefits observed are maintained over time and to explore potential long-term impacts on VAc training, vocal health, and performance.

The reliance on self-reported data introduces another layer of limitation (Almeida et al., 2021). Self-reports are inherently subjective and may be influenced by individual perceptions, biases, and relations. VA participants might have overestimated or underestimated their progress, vocal or physical condition, and adherence to the program when completing the surveys. This subjectivity can result in data that is less accurate and harder to validate against objective measures. The lack of objective assessment tools (Kirkpatrick & Kirkpatrick, 2016), such as physiological measurements or third-party evaluations, means that the findings are heavily dependent on the participants' personal reflections (Leavy, 2014; Almeida *et al.*, 2021), which may not fully capture the true effects of the PER.

Given these limitations, the findings should be interpreted with caution, and their generalizability to a broader population of VAs remains uncertain. These constraints highlight the need for further genre-specific research with more rigorous methodologies, including control groups, objective assessment tools, and longer study durations. Transitioning from these limitations, it is essential to explore recommendations for future research to address these gaps and continue refining integrative exercise programming for VAs.

Recommendations:

There are several vital areas that warrant further study to advance the field of VAc training. Firstly, investigating the laryngeal view of the intrinsic musculature (Sandage & Smith, 2017) and its adaptations during exercise (Naito & Niimi, 2000; Orlikoff, 2008) - and optional concurrent vocalising through advanced techniques such as endoscopy or MRI (Røksund, 2012) - could provide crucial insights into how specific exercises impact vocal fold function and training. This research would enable the development of exercise protocols that are precisely aligned with the physiological needs of VAs (LeBorgne & Dal Vera, 2015; Hunter et al., 2020), potentially reducing the risk of injury and enhancing performance outcomes even further. Additionally, exploring genre-specific training regimens is paramount (Spivey, 2018; Chandler, 2022), as VAs with different performance styles face unique demands. Research should focus on optimising training protocols tailored to various genres to address each style's distinct technical and physical requirements. This approach would ensure that training programs are more effective and relevant to the specific needs of vocalists across diverse genres.

Future plans for this research involve expanding the development of customisable, accessible, and scalable training plans for VAs, emphasising creating flexible regimens that cater to individual needs and performance demands across various genres. This initiative includes (Cranton, 2006; Kirkpatrick & Kirkpatrick, 2016) building supportive communities facilitating resource sharing, expert guidance and feedback, evidence-based resources, and networking possibilities. Additionally, educational resources like workshops and webinars would help VAs understand ESPs and the fundamentals behind integrated PE and VAc training. By embodying these elements, future research must work to balance practical methods, ultimately supporting VAs in giving them training tools to support long-term health and enhanced performance through professional and holistic development.

Conclusion:

The implications of this study for the emergent field of integrative exercise training for vocal performance are significant, offering practical advancements and theoretical contributions. The knowledge gained portrays the necessity of a holistic approach that addresses the physical and vocal health and well-being of VAs, demonstrating the efficacy of a tailored PER in overall performance and training. More broadly, this research underscores the importance of bridging the gap and encouraging knowledge sharing between the exercise science and vocal performance fields. Similarly to the necessity of PE for VAs, exercise and athletic professionals could benefit from vocal health awareness and professional monitoring to curb the frequency of

voice disorder and misuse (Newman & Kersner, 1998; Hamdan et al., 2021). By fostering interdisciplinary collaboration, this integrative approach promises to improve training and maintenance strategies, aiding VAs and exercise professionals across various disciplines who face similar vocal and physical demands.

The broader ramifications of this project extend beyond the immediate development of a PER for VAs, influencing both the field of vocal performance and the integration of vocal health practices training realms. This study has contributed to a growing recognition of the interconnectedness between physical and vocal wellbeing in exercise and vocal performance by synthesising expert knowledge with practical application. This project underscores the necessity of a multidimensional approach to training that acknowledges the diverse and evolving needs of VAs. On a personal level, this research journey has facilitated significant growth in understanding the complexities of performance training, the critical role of evidence-based practice, and the necessity of inter-field cooperation and discussion to adaptively and ethically address holistic VA training. Engaging with VAc experts and VAs has not only enriched the program's development but has also elucidated the value of diverse perspectives and networking within the collaborative field. This project has reinforced the belief that the future of VA training lies in a comprehensive, well-rounded approach that prioritises holistic health and the continuous evolution of methods to meet the demands of an ever-changing field.

Reflection:

As a practitioner navigating this research project, I grappled constantly with imposter syndrome, often questioning my expertise and the validity of my contributions to the field (Clance & Imes, 1978). This self-doubt was particularly challenging given the high stakes of discussing with the experts in the field and developing a specialised PER for VAs. To address these concerns, as mentioned previously, I utilised the observation journal and Kolb's (1984) reflective framework to document the practical aspects of the research and training processes and my personal experiences and struggles. I could critically analyse and reframe the doubts and obstacles I faced (Belaggoun & Djouma, 2024), transforming feelings of inadequacy into opportunities for growth and learning (Kolb, 1984). I ended up having the confidence to complete the expert interviews through my fear to gain valuable insights on how to best train VAs and enhance the field of VAcs. Overall, this process of reflection allowed me to acknowledge and address my uncertainties, reinforcing my commitment to the research and the community of interest (Cranton, 2006). By confronting and overcoming these internal obstacles, I maintained a clear focus on the relevance and impact of the project, ensuring that the findings

remained as unbiased as possible through a practitioner lens (Mercer, 2007) while being grounded in both practical experience and rigorous academic inquiry.

Closing:

This study successfully developed and implemented a holistic PER tailored for VAs, demonstrating its effectiveness in enhancing their physical and vocal performance and holistic well-being. The research accentuates the importance of a comprehensive vocal training approach incorporating physical exercise practices. The findings contribute to a growing body of knowledge on PE for VAs and provide a foundation for future research and practice. As the field continues to evolve, building on these findings and exploring new ways to support the health, longevity and performance of VAs through targeted exercise regimens is essential. The study's emphasis on individual experience and evidence-based practice serves as a model for future research and underscores the value of holistic approaches to training in VAc performance.

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Appendices

1. Ethics Form

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

PG2 / E1 FORM

APPLICATION FOR ETHICAL APPROVAL

In order for research to result in benefit and minimise risk of harm, it must be conducted ethically. A researcher may not be covered by the University's insurance if ethical approval has not been obtained prior to commencement.

The University follows the OECD Frascati manual definition of **research activity**: "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications". As such this covers activities undertaken by members of staff, postgraduate research students, and both taught postgraduate and undergraduate students working on dissertations/projects.

The individual undertaking the research activity is known as the "principal researcher".

Ethical approval is not required for routine audits, performance reviews, quality assurance studies, testing within normal educational requirements, and literary or artistic criticism.

Please read the notes for guidance before completing ALL sections of the form.

This form must be completed and approved prior to undertaking any research activity. Please see Checklist for details of process for different categories of application.

Delete the Guidance Notes at the end of the form BEFORE submitting your application

SECTION A: About You (Principal Researcher)

1	Full Name:	Anna Celeste Holden				
2	Tick all boxes which apply:		Member of staff:	☐	Honorary research fellow:	☐
3	Undergraduate Student	☐	Taught Postgraduate Student	☒	Postgraduate Research Student	☐

4	Institute/Academic Discipline/Centre:	WAPPAR
5	Campus:	Carmarthen
6	E-mail address:	2118218@student.uwtsd.ac.uk or anna.holden20@gmail.com
7	Contact Telephone Number:	+1(630)731-7562
	For students:	
8	Student Number:	2118218
9	Programme of Study:	MA in Professional Practice (Voice Pedagogy)
10	Director of Studies/Supervisor:	Louise Emanuel/Julie Crossman/Debbie Winter

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Y Drindod Dewi Sant
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Trinity Saint David

PG2 / E1 FORM

SECTION B: Approval for Research Activity

1	Has the research activity received approval in principle? (please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual)		**YES**	☒	**NO**	☐
					Date	
2	If Yes, please indicate source of approval (and date where known): ***Approval in principle must be obtained from the relevant source prior to seeking ethical approval***	Research Degrees Committee		☐		
3		Institute Research Committee		☐		
4		Other (write in) WAPPAR Ethics Board Representative		☒		

SECTION C: Internal and External Ethical Guidance Materials

	Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines.	
1	**UWTSD Research Ethics & Integrity Code of Practice**	☒
2	**UWTSD Research Data Management Policy**	☒
3		☐

SECTION D: External Collaborative Research Activity

1	Does the research activity involve collaborators outside of the University?		**YES**	☐	**NO**	☒
2	If Yes, please provide the name of the external organisation and name and contact details for the main contact person and confirmation this person has consented to their personal data being shared.as part of this collaboration.					
3	Institution					
4	Contact person name					
5	Contact person e-mail address					
6	Has this individual consented to sharing their details on this form?		**YES**	☐	**NO**	☐
7	Are you in receipt of a KESS scholarship?		**YES**	☐	**NO**	☐
8	Is your research externally funded		**YES**	☐	**NO**	☐
9	Are you specifically employed to undertake this research in either a paid or voluntary capacity?	Voluntary	**YES**	☐	**NO**	☐
10		Employed	**YES**	☐	**NO**	☐
11	Is the research being undertaken within an existing UWTSD Athrofa Professional Learning Partnership (APLP)	If YES then the permission question below does not need to be answered.	**YES**	☐	**NO**	☐
12	Permission to undertake the research has been provided by the partner organisation	(If YES attach copy) If NO the application cannot continue	**YES**	☐	**NO**	☐

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Where research activity is carried out in collaboration with an external organisation

13	Does this organisation have its own ethics approval system?	**YES**	☐	**NO**	☐
14	If Yes, please attach a copy of any final approval (or interim approval) from the organisation				

SECTION E: Details of Research Activity

1	Indicative title:	Qualitative Study on Physical Exercise Regimens for Vocal Athletes Informed by Experts in the Field		
2	Proposed start date:	16th January 2024	Proposed end date:	2nd September 2024
3	**Introduction to the Research (maximum 300 words)** **Ensure that you write for a <u>Non-Specialist Audience</u> when outlining your response to the three points below:** • *Purpose of Research Activity* • *Proposed Research Question* • *Aims of Research Activity* • *Objectives of Research Activity* Demonstrate, briefly, how **<u>Existing Research</u>** has informed the proposed activity and explain • *What the research activity will add to the body of knowledge* • *How it addresses an area of importance.*			
4	**Purpose of Research Activity** This study aims to investigate the impact of tailored physical exercise regimens, informed by experts in vocal training and sports science, on the performance and vocal health of vocal athletes. By assessing the collaborative process and athlete experiences, it seeks to understand and refine the effectiveness of these regimens in enhancing the holistic well-being and performance of vocal athletes. (this box should expand as you type)			
5	**Research Question** How do insights from experts in the field of voice and sports science inform the development of optimized physical exercise regimens for vocal athletes while safeguarding vocal health? What are vocal athletes' thoughts and what changes or adaptations do they perceive in their training and performance with the utilization of tailored physical exercise regimens? (this box should expand as you type)			
6	**Aims of Research Activity** • Explore the practical recommendations and guidelines suggested by experts to customize exercise regimens that align with the unique needs and demands of vocal athletes, considering their performance goals and vocal well-being. • Investigate the perceptions of vocal athletes regarding the impact of specialized physical exercise regimens. • Explore the reported benefits, challenges, adaptations, and effectiveness experienced by vocal athletes in integrating informed, tailored physical exercise regimens into their vocal training. (this box should expand as you type)			
7	**Objectives of Research Activity** • To gain insight from experts in vocal training and sports science to understand the specific criteria and considerations that shape the design of ethical and effective physical exercise regimens for vocal athletes.			

	• To facilitate a collaborative process between field experts and vocal athletes, seeking to assess the practical implementation and effectiveness of tailored exercise protocols in ethically enhancing vocal performance and maintaining vocal health. • To understand how to ethically delineate the methodology for creating tailored exercise protocols that align with the specific requirements and goals of vocal athletes. • To assess the subjective experiences and feedback of vocal athletes concerning the incorporation and impact of tailored exercise regimens informed by expert guidance on their vocal capabilities and overall performance. (this box should expand as you type)
8	**Proposed methods (maximum 600 words)** Provide a brief summary of all the methods that **may** be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed.
9	Qualitative research serves as the overarching methodology of this study, allowing for in-depth exploration and understanding of the nuanced experiences, perspectives, and insights of both experts and vocal athletes in the realms of vocal training and sports science. Literature Review: A literature review will be instrumental in gathering the most current and relevant information on exercise regimens for vocal athletes. This process will involve an extensive exploration of recent studies, articles, and findings in both vocal training and sports science. The insights gleaned from this review will serve as a foundational knowledge base, informing discussions with experts and aiding in the formulation of tailored exercise regimens. By integrating the latest research findings into these conversations, the aim is to ensure that the resulting exercise regimen is informed by the most up-to-date and effective practices in the field. Interviews: Conducting semi-structured interviews with experts in the vocal training and sports science domains will be a fundamental component of this research. These interviews will serve as a platform to gain specialized insights and expertise. By engaging in open-ended discussions with these experts, I aim to delve into the intricacies of tailored exercise regimens for vocal athletes. These sessions will explore their perspectives, recommendations, and nuanced understandings, contributing to a comprehensive comprehension of the considerations necessary for optimizing exercise routines in the realm of vocal athleticism. Surveys: Before commencing the research and upon its conclusion, surveys will be administered to vocal athletes to gauge their sentiments, thoughts, and experiences regarding the exercise regimen. These surveys will capture the athletes' initial expectations, concerns, and preferences, providing a baseline understanding. Subsequently, post-research surveys will gather feedback on perceived improvements in vocal performance, physical well-being, and overall satisfaction with the regimen. This data will offer valuable insights into the athletes' perspectives, aiding in the assessment of the regimen's efficacy and their holistic experiences throughout the research period. Observation Journal: A detailed observation journal will document the performance of vocal athletes during their exercise routines and their voice training. This journal will meticulously capture the nuances of their exercises, noting improvements in technique, endurance, and overall performance. Additionally, it will document any observable enhancements in their vocal capabilities. This observational data will serve as a critical resource, allowing for a comprehensive understanding of the direct impact of exercise regimens on the vocal athletes' performance and fostering potential insights into optimized training methodologies. Personal Research Journal: I will maintain a comprehensive journal to structure my reflections, potential data outcomes, and emerging theories or questions. This repository will function as a supplementary resource, aiding my navigation through the complexities of insider knowledge in exercise science and vocal domains. Moreover, it will serve as a repository for future research hypotheses. To uphold ethical standards and project validity, this confidential journal will be securely stored in a password-protected folder on my personal laptop.

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10	**Location of research activity** Identify all locations where research activity will take place.
11	1) Zoom (no recordings will take place through the platform) 2) My voice studio 3) Vocal athlete's exercise space (home/gym) (this box should expand as you type)
12	**Research activity outside of the UK** If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised by the local context in which the research activity is taking place, for example, particular cultural and/or legal sensitivities or vulnerabilities of participants.
13	The purpose of the study is to engage in pedagogical development within my own practice. Under current IRB regulations my study consists of PRACTICA using myself as a research subject. The purpose of the work-based learning project is to engage in professional development, and it constitutes an educational exercise. The audience for the results of the activity is myself and my students. IRB approval is not required. If the data offers a scholarly contribution, US IRB application can be sought subsequently to enable dissemination. *(this box should expand as you type)*

14	Use of documentation not in the public domain: Are any documents **NOT** publicly available?	**NO**	☒
		YES	☐
15	If Yes, please provide details here of how you will gain access to specific documentation that is not in the public domain and that this is in accordance with prevailing data protection law of the country in question and England and Wales. *(this box should expand as you type)*		

SECTION F: Scope of Research Activity

1	**Will the research activity include:**	**YES**	**NO**
2	Use of a questionnaire or similar research instrument?	☒	☐
3	Use of interviews?	☒	☐
4	Use of diaries?	☒	☐
5	Participant observation with their knowledge?	☒	☐
6	Participant observation without their knowledge?	☐	☒
7	Use of video or audio recording?	☒	☐
8	Access to personal or confidential information without the participants' specific consent?	☐	☒
9	Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive?	☐	☒
10	Performance of any acts which may cause embarrassment or affect self-esteem?	☒	☐
11	Investigation of participants involved in illegal activities?	☐	☒
12	Use of procedures that involve deception?	☐	☒
13	Administration of any substance, agent or placebo?	☐	☒

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14	Working with live vertebrate animals?	☐	☒
15	Other primary data collection methods, please explain in this box For example, 'focus groups'. Please indicate the type of data collection method(s) in this box and tick the accompany box.	☐	☒
16	Details of any other primary data collection method: (this box should expand as you type)		

If NO to every question, then the research activity is (ethically) low risk and **may** be exempt from **some** of the following sections (please refer to Guidance Notes).

If YES to any question, then no research activity should be undertaken until full ethical approval has been obtained.

SECTION G: **Intended Participants**

	Who are the intended participants:	**YES**	**NO**
2	Students or staff at the University?	☐	☒
3	Adults (over the age of 18 and competent to give consent)?	☒	☐
4	Vulnerable adults?	☐	☒
5	Children and Young People under the age of 18? (Consent from Parent, Carer or Guardian will be required)	☐	☒
6	Prisoners?	☐	☒
7	Young offenders?	☐	☒
8	Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper?	☐	☒
9	People engaged in illegal activities?	☐	☒
10	Others (please identify specifically any group who may be unable to give consent) please indicate here and tick the appropriate box.	☐	☒
11	Other – please indicate here: (this box should expand as you type)		

12	**Participant numbers and source** Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited?	
13	How many participants are expected?	I expect 5-7 field experts and 6-8 vocal athlete participants. *(this box should expand as you type)*
14	Who will the participants be?	There will be experts in the field of voice and exercise training, which may include pedagogues, physical therapists, speech language pathologists, certified personal trainers etc. The participants will be vocal athletes with demanding physical and vocal roles. *(this box should expand as you type)*
15	How will you identify the participants?	I will identify the 'expert' participants by being familiar with their work in the fields of voice and exercise, and their integration.

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		The vocal athletes will be chosen from my studio. In addition to factors such as willingness to participate, commitment to exercise regimens, and availability, participants from the studio will be selected based on their self-reported general physical health. This criterion ensures that the study includes vocal athletes who are in a suitable physical condition to engage in exercise routines, providing a comprehensive understanding of the impact of tailored regimens on individuals with varying health statuses. This holistic approach to participant selection aims to capture a diverse range of experiences, including how general physical health may influence the outcomes of the study. I will also recruit for both groups from social media, academic platforms and networking. Participants will be located across the globe, resulting in information being shared internationally. *(this box should expand as you type)*

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	Information for participants:	**YES**	**NO**	**N/A**
17	Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	☒	☐	☐
18	Will you tell participants that their participation is voluntary?	☒	☐	☐
19	Will you obtain written consent for participation?	☒	☐	☐
20	Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?	☒	☐	☐
21	If the research is observational, will you ask participants for their consent to being observed?	☒	☐	☐
22	Will you tell participants that they may withdraw from the research at any time and for any reason?	☒	☐	☐
23	With questionnaires, will you give participants the option of omitting questions they do not want to answer?	☒	☐	☐
24	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	☒	☐	☐
25	Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?	☒	☐	☐
26	If NO to any of above questions, please give an explanation			
27	*(this box should expand as you type)*			

	Information for participants:	**YES**	**NO**	**N/A**
29	Will participants be paid?	☐	☒	☐
30	Is specialist electrical or other equipment to be used with participants?	☐	☒	☐
31	Are there any financial or other interests to the investigator or University arising from this study?	☐	☒	☐
32	Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims?	☐	☒	☐
33	If YES to any question, please provide full details			
34	*(this box should expand as you type)*			

SECTION H: Anticipated Risks

1	**Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them.** If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form.		
2	**Full risk assessment completed and appended?**	**Yes**	☒
		No	☐
3	**Risks to participants** For example: emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information		
4	Risk to Participant: For vocal athlete participants: • Risk of physical strain might involve potential injuries or physical discomfort due to the implementation of new exercise regimens. This could lead to fatigue or even a decline in their performance abilities.	*How will you mitigate the Risk to Participant* Mitigating this risk involves the careful design and monitoring of exercise routines, conducting regular health assessments, and ensuring professional supervision to prevent overexertion or injury. Exercise regimens will be carefully tailored to gradually introduce new routines, ensuring they align with the athletes' capabilities	

	• Inaccurate self-reports For expert participants: • Inadvertent data share substantial insights or topics without seeking or receiving compensation for their expertise. This could lead to an ethical concern regarding the appropriation of valuable professional insights without due compensation. • Confidentiality • Bias in expert insight *(this box should expand as you type)*	and are monitored for any signs of physical strain. Regular health assessments, including physical evaluations and monitoring for signs of fatigue or injury, should be conducted. Additionally, ensuring professional supervision during exercises will help prevent overexertion or incorrect technique, minimizing the risk of injury and fatigue. Inaccurate self-reports will be mitigated through diversified data collection methods, cross-referencing self-reports with observations and expert evaluations To mitigate this risk, the researcher must emphasize transparency about the value of the experts' contributions, clearly outlining the intentions to honour and compensate their expertise. Offering proper recognition or compensation for their time and knowledge can address this ethical concern and ensure a fair exchange of valuable insights. Use of multiple expert sources, literature review, cross-verification, and critical evaluation of suggestions to mitigate bias both with insider research and the expert recommendations as to not skew or flaw regimen design. *(this box should expand as you type)*
5	If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities	
	A potential risk associated with this study involves the impact on participants' self-esteem, especially if the research delves into potentially embarrassing thoughts, actions, or experiences related to health and fitness. To mitigate this risk, I will delineate all potential risk information in the information and permission form prior to gaining written consent. Participants will be assured that their well-being is of utmost importance, and they can withdraw from the study at any time without providing a reason. Additionally, participants will be informed that professional support and resources will be readily available should they experience any emotional distress, concerns related to self-esteem, or physical discomfort. This proactive approach aims to address potential sensitivities, emphasizing participant care and well-being throughout the research process. *(this box should expand as you type)*	
6	**Risks to investigator** For example: personal safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest	
	Risk to Investigator: • Bias or influence in interpreting and implementing the insights gained from experts and participants • Risk of accusation of harm • Conflict of interest • Interdisciplinary conflict *(this box should expand as you type)*	*How will you mitigate the Risk to Investigator:* I will maintain a critical and objective approach when analysing and applying the gathered information using the research and observation journals. Adhering to rigorous research methodologies, cross-referencing data from various sources, and employing diverse perspectives in the analysis will aid in mitigating personal bias. Additionally, I will consult with my mentors periodically to ensure objectivity and accuracy in interpreting the data and developing

		the exercise regimens. This approach ensures a more comprehensive and impartial assessment, minimizing the impact of individual biases on the research outcomes. I acknowledge the potential risks associated with accusations of harm and conflicts of interest. I am committed to upholding rigorous ethical standards and maintaining transparency throughout the research process. Participants will receive comprehensive information about the study's objectives, procedures, and potential risks to ensure informed consent. Any perceived conflicts of interest will be openly disclosed, and steps will be taken to manage and minimize these conflicts. Additionally, I prioritize participant welfare, ensuring the research is conducted with the utmost integrity and in adherence to ethical guidelines. In the event of concerns or accusations, a proactive and transparent communication approach will be maintained. Participants will be assured that professional support and information will be readily available should they experience any physical or emotional distress, fostering an environment of participant care and ethical conduct throughout the study. Lastly, facilitation of open communication, mediation of conflicting perspectives, and focus on shared objectives will be used in cases of disagreements caused by the interdisciplinary and collaborative nature of this study. *(this box should expand as you type)*
7	**University/institutional risks** For example: adverse publicity, financial loss, data protection	
	Risk to University: • Ethical compliance • data security • Reputational concerns • Adverse publicity *(this box should expand as you type)*	*How will you mitigate the Risk to University:* A strict adherence to ethical guidelines and regulatory protocols will be paramount. Ensuring that the research is conducted in alignment with institutional ethical standards and obtaining necessary approvals from the university's ethics board will mitigate ethical risks. Additionally, robust data security measures, including cloud storage and restricted access to sensitive information, will safeguard against data breaches or unauthorized access. Moreover, maintaining transparent and clear communication regarding the research objectives and outcomes within the university community will help mitigate any potential reputational risks. Regular updates, internal reviews, and adherence to institutional protocols will ensure that the research is conducted with integrity and within the university's ethical and academic standards, thus mitigating potential risks to the institution. *(this box should expand as you type)*

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8	**Disclosure and Barring Service**			
9	If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants.	**YES**	**NO**	**N/A**
10	Does your research require you to hold a current DBS Certificate?	☐	☒	☐

SECTION I: Feedback, Consent and Confidentiality

1	**Feedback** What de-briefing and feedback will be provided to participants, how will this be done and when?
	At the conclusion of the research study, participants who express interest in receiving a debriefing or summary of the research findings will have the opportunity to contact me via a provided email address. This voluntary option for participants to request a debriefing aims to ensure transparency and offers an avenue for those involved to access the outcomes and conclusions of the study. The provided email will serve as a direct line of communication, allowing participants to express their interest in receiving information about the research outcomes, fostering an open and communicative approach to knowledge dissemination. *(this box should expand as you type)*
2	**Informed consent** Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded in accordance with prevailing data protection legislation.
	A digital information and consent form will be utilized as a comprehensive means to inform participants—both experts in the field and vocal athletes—about the study's objectives, procedures, and potential implications. Experts will be invited to provide their consent digitally, signifying their agreement to participate in the semi-structured interviews. Vocal athletes will have the option to provide consent verbally and digitally, ensuring a clear understanding of their participation and allowing for flexibility in their preferred mode of agreement. Importantly, participants, both experts and vocal athletes, will retain the right to revoke their consent at any point during the research without the necessity of providing a reason, empowering them with autonomy over their involvement in the study. *(this box should expand as you type)*
3	**Confidentiality / Anonymity** Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case.
	All information shared during the research will be handled with the utmost discretion. To maintain confidentiality, participant identities will be anonymized in any resulting reports or publications, using coded identifiers to ensure that individual names or personal details are not disclosed. No personal information other than name and contact information, to send the consent form, will be disclosed. Additionally, all data collected will be securely stored and accessible only to the research team, with stringent measures in place to prevent unauthorized access. Participants can trust that their information and contributions will be treated with strict confidentiality, preserving their anonymity and ensuring a safe and secure environment for their involvement in the study. *(this box should expand as you type)*

SECTION J: Data Protection and Storage

In completing this section refer to the University's Research Data Management Policy and the extensive resources on the University's Research Data Management web pages (http://uwtsd.ac.uk/library/research-data-management/).

1	Does the research activity involve personal data (as defined by the General Data Protection Regulation 2016 "GDPR" and the Data Protection Act 2018 "DPA")?	**YES**	**NO**

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	"Personal data" *means any information relating to an identified or identifiable natural person ('data subject'). An identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person.*	☒	☐
2	If YES, provide a description of the data and explain why this data needs to be collected: As part of the consent and communication process, participants will be required to provide their names, if not already known, and potentially their email addresses. This information is essential for maintaining contact, sending study-related information, and obtaining consent. However, to ensure privacy and mitigate potential risks, these details will be stored separately from the research data. Participant names, contact information and consent forms will be kept in a separate, password-protected database, disconnected from the research data to maintain anonymity during analysis and reporting. Strict protocols will be in place to restrict access to this information, ensuring that only authorized research personnel have access to participant contact details. This approach aims to balance the necessary communication and consent process while upholding the anonymity and confidentiality of the collected research data.		
3	Does it involve special category data (as defined by the GDPR)?	**YES**	**NO**
	"Special category data" *means sensitive personal data consisting of information as to the data subjects' –* *(a) racial or ethnic origin,* *(b) political opinions,* *(c) religious beliefs or other beliefs of a similar nature,* *(d) membership of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992),* *(e) physical or mental health or condition,* *(f) sexual life,* *(g) genetics,* *(h) biometric data (as used for ID purposes),*	☒	☐
4	If YES, provide a description of the special category data and explain why this data needs to be collected:		
	Sensitive health data is vital to this study as it directly correlates with the impact of physical exercise regimens on the vocal athletes' well-being and performance. Understanding and analysing health-related information, such as baseline health conditions, physical exertion levels, and potential changes in health status throughout the study, are integral in evaluating the efficacy and safety of the exercise regimens. These insights provide a comprehensive understanding of how the tailored exercise routines affect the vocal athletes' physical, vocal and mental health, ensuring the development of regimens that prioritize their well-being while optimizing their performance. The collection and analysis of sensitive health data are essential in shaping the study's outcomes, guiding the creation of safe and effective exercise strategies tailored to the unique needs of vocal athletes. *(this box should expand as you type)*		

5	Will the research activity involve storing personal data and/or special category data on one of the following:	**YES**	**NO**
6	Manual files (i.e. in paper form)?	☐	☒
7	University computers?	☐	☒
8	Private company computers?	☐	☒
9	Home or other personal computers?	☒	☐
10	Laptop computers/ CDs/ Portable disk-drives/ memory sticks?	☒	☐
11	"Cloud" storage or websites?	☒	☐
12	Other – specify:	☐	☒

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13	For all stored data, explain the measures in place to ensure the security of the data collected, data confidentiality, including details of password protection, encryption, anonymisation and pseudonymisation:		
	Data will be stored in my personal password protected SharePoint Office 365 offered through the university. I will also use my password protected laptop throughout my research. This data and information will not be shared to anyone outside of my university mentor, in which case, I as the principal researcher, will grant limited access. No video or audio data will be recorded from the interview portion of my research. During the interview portion, the participants' personal recounts and data will be analysed using distinct identifiers to guarantee confidentiality and anonymity of the participants. The list of identifiers will be secured in a password protected folder to ensure ethical confidentiality in final data compilation. In terms of data from the surveys, anonymity will be respected by not collecting any personal information. My observation and reflective journals will also be virtually kept in a password protected folder to secure and preserve my findings confidentially and ethically. *(this box should expand as you type)*		
14	**All Data Storage**		
15	Will the research activity involve any of the following activities:	**YES**	**NO**
16	Electronic transfer of data in any form?	☐	☒
17	Sharing of data with others at the University?	☒	☐
18	Sharing of data with other organisations?	☐	☒
19	Export of data outside the European Union or importing of data from outside the UK?	☒	☐
20	Use of personal addresses, postcodes, faxes, emails or telephone numbers?	☒	☐
21	Publication of data that might allow identification of individuals?	☐	☒
22	Use of data management system?	☐	☒
23	Data archiving?	☐	☒
24	If YES to any question, please provide full details, explaining how this will be conducted in accordance with the GDPR and DPA (and/or any international equivalent):		
	As mentioned previously, all research data, project drafts and information will be kept in the university's SharePoint Office 365 platform that is password protected for my personal use. There will not be any transfer of data other than for mentoring purposes. In terms of participant personal information, the data will be categorized under distinct identifiers to ensure the anonymity of the participant. The list of identifiers and their corresponding participant will be in a separate password protected folder on my personal laptop. All data will be securely stored until the end of the research process and moderation, where it will then be deleted. Throughout the entire research process, the participant holds the right to inquire about any of their own personal data being stored and can request the data be deleted and discarded permanently from the research and analysis. *(this box should expand as you type)*		
25	List all who will have access to the data generated by the research activity:		
	Anna Celeste Holden – principle researcher Pippa Anderson – mentor (partial access granted by principle researcher if necessary) *(this box should expand as you type)*		
26	List who will have control of, and act as custodian(s) for, data generated by the research activity:		
	Anna Celeste Holden – principle researcher *(this box should expand as you type)*		

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27	Give details of data storage arrangements, including security measures in place to protect the data, where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not.		
	All research data will be stored in the university's SharePoint Office 365 system which will be used as a personal storage platform. This cloud storage is password protected and the data will not be shared outside of instances involving mentoring. All data will be stored virtually until my research is completed and then promptly deleted. *(this box should expand as you type)*		
28	Please indicate if your data will be stored in the UWTSD Research Data Repository (see https://researchdata.uwtsd.ac.uk/). If so please explain. (*Most relevant to academic staff)*		
	(this box should expand as you type)		
29	Confirm that you have read the UWTSD guidance on data management (see https://www.uwtsd.ac.uk/library/research-data-management/)	**YES**	☒
		NO	☐
30	Confirm that you are aware that you need to keep all data until after your research has completed or the end of your funding	**YES**	☒
		NO	☐

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SECTION K: Declaration

31	The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants. In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice which is published on the website: https://www.uwtsd.ac.uk/research/research-ethics/		
	Signature of applicant:	Anna Celeste Holden	**Date:** 15th Nov 2024

For STUDENT Submissions:

32	Director of Studies/Supervisor:	Laura James	**Date: 15.1.24**
33	Signature:	Laura James	

For STAFF Submissions:

34	Academic Director/ Assistant Dean:		**Date:**
35	Signature:		

Checklist: Please complete the checklist below to ensure that you have completed the form according to the guidelines and attached any required documentation:

☒	I have read the guidance notes supplied before completing the form.
☒	I have completed **ALL RELEVANT** sections of the form in full.
☐	I confirm that the research activity has received approval in principle
☒	I have attached a copy of final/interim approval from external organisation (**where appropriate**)
☐	I have attached a full risk assessment (and have NOT completed Section H of this form) (where appropriate) *ONLY TICK IF YOU HAVE* ***ATTACHED A FULL RISK ASSESSMENT***
☒	I understand that it is my responsibility to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice.
☒	I understand that before commencing data collection all documents aimed at respondents (including information sheets, consent forms, questionnaires, interview schedules etc.) must be confirmed by the DoS/Supervisor, module tutor or Academic Director.
☒	I have deleted the guidance notes before submitting the PG2 for consideration

RESEARCH STUDENTS AND STAFF ONLY
All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk , with the title 'Ethical Approval' followed by your name.
You will be informed of the outcome of your claim by email; therefore it is important that you check your University and personal email accounts regularly.

STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.

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University of Wales
Trinity Saint David

PG2 / E1 FORM

This form is available electronically from the Academic Office web pages:
https://www.uwtsd.ac.uk/academic-office/appendices-and-forms/

Application Process

All staff research projects and all research students must submit the Ethical Approval Form to the **University Research Ethics Committee** via the Academic Office (pgresearch@uwtsd.ac.uk). Staff research directly in relation to personal study for taught undergraduate or Masters programmes should be submitted via the Institute procedures explained below.

Taught masters and taught undergraduate research Ethical Approval Forms are considered **within Institutes.** Institutes will provide details of the specific processes for this. Where the Ethical issues within any single ethical application are of particular concern the Institute will refer these to the University Research Ethics Committee. Any student activity that involves the collection of primary data needs to undergo Ethical approval, this includes assignment work as well as dissertations.

2. Self Permission Letter

Dear University of Wales Trinity Saint David,

RE: Qualitative Study on Physical Exercise Regimens for Vocal Athletes Informed by Field Experts.

I confirm that I approve the research proposed on 'physical exercise for vocal athletes' to be carried out by Anna Celeste Holden, Vocal Coach during private voice lessons with my clients between 16th January through 2nd September 2024.

If you have any further questions or require additional information, I can be contacted at

+1 (630) 731-7562 or anna.holden20@gmail.com.

Kind Regards,

Anna Celeste Holden

15th November 2024

3. Study Abstract

VOICE STUDY CENTRE

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Qualitative Study on Physical Exercise Regimens for Vocal Athletes Informed by Experts in the Field

Abstract:

This qualitative study explores the intersection of vocal performance and physical fitness, focusing on the development and impact of tailored Physical Exercise Regimens (PERs) for Vocal Athletes (VAs). The research, driven by the dual expertise of the principal investigator as a vocal coach and certified personal trainer, seeks to empower VAs by addressing the unique challenges they face in balancing physical health and vocal abilities. Drawing on insights from experts in voice and sports science, the study aims to craft personalized exercise programs that optimize both physical and vocal performance potential. The research employs an exploratory qualitative approach, combining expert interviews, literature review, surveys, and observational journals to gather in-depth insights from both experts and VAs. The study's intended impact is to enhance the overall well-being and performance longevity of VAs by offering a sustainable and tailored approach to physical exercise. The research aligns with ethical standards, prioritizing participant safety, informed consent, and confidentiality. The study not only contributes to the field of vocal athletics and exercise physiology but also provides valuable personal growth opportunities for the principal investigator in terms of insider research ethics, qualitative research skills, and interdisciplinary collaboration insights.

4. Previous Work Excerpt

Excerpt: Harmonizing Voices and Bodies: A Desktop Study Exploring the Integration of Physical Exercise into Voice Training Via Exercise Science Principles and Muscle Bioenergetics

Impact/Conclusion:

Looking ahead, I envision incorporating PE into the voice studio as a powerful strategy that will positively impact the field. Engaging in regular physical activity enhances cardiovascular health, endurance, stamina, increases lung capacity, improves muscular strength and postural alignment, and promotes overall well-being (Roy, Trudeau & McCoy, 2017). By integrating exercise routines into voice training sessions, vocal performers can explore their full vocal body instrument, ultimately leading to improved vocal performance.

Understanding the biomechanical composition of the ILSM through research and voice assessment techniques provides valuable insights into muscle activation patterns, coordination, and potential abnormalities during exercise for when visualization is not manageable or ethical (Sandage & Smith, 2021). This knowledge allows coaches, trainers, and researchers to design and refine ethical programming methods that optimize vocal performance without compromising vocal health. Visualizing the larynx during exercise through CTE testing has the opportunity to play a vital role in fine-tuning exercises and techniques, and minimizing the risk of injury (Heimdal et al., 2006), however ethical constraints need to be discussed.

Moreover, introducing PE within the voice studio setting promotes a holistic approach to vocal training (Adela, 2021; Reed, 2021). By addressing both the physical and artistic aspects of singing, performers can develop a well-rounded skill set that encompasses technical proficiency, artistic expression, and physical fitness (Ragan, 2020). This integration aligns with the evolving understanding of voice training as a multidimensional discipline that encompasses mind, body, and voice (Lopez et al., 2020). To implement this strategy effectively, voice instructors should collaborate with fitness professionals to productively incorporate exercises specifically tailored to vocalists' needs in an evidence-based manner (Chandler, 2022; Friedlander, 2018).

Furthermore, the integration of PE through use of holistic programming, ESP, biomechanical understanding of the ILSM, and possible future visualization of the larynx during exercise holds immense potential for vocal athletes and the broader field of vocal performance (LeBorgne & Rosenberg, 2019; Friedlander, 2018; Chandler, 2022). This comprehensive approach addresses the unique needs of vocal athletes on individual and industry levels, enhances performance, and mitigates vocal health risks. Moreover, it tackles industry-wide

challenges faced by both vocalists and exercise professionals (Dallaston & Rumbach, 2015; Fontan et al., 2017; Heidel & Torgerson, 1993; Rumbach, 2013; Newman & Kersner, 1998), creating opportunities for improvement and growth. However, more research and ethical consideration is needed to visualize the larynx during exercise of healthy participants to establish a consensus on the best programming methods and definitions for integrating the voice and exercise fields.

The impact of integrated programming extends beyond individual vocal athletes. Exercise professionals, who often suffer from vocal disorders resulting from misuse, can benefit from the applied biomechanical understanding and programming techniques designed to restore and improve their vocal health through professional support (Archambeault & Smith, 2019; Dallaston & Rumbach, 2015). By integrating the voice and exercise fields, professionals can work towards defining best practices, establishing ethical visualization methods, and fostering collaboration to improve the overall well-being of vocalists and exercise professionals alike.

In conclusion, there is a clear need for PE, holistic programming for vocal athletes, supported by ESP, biomechanical understanding of the ILSM, and visualization of the larynx during exercise. This integrated approach enhances performance on an individual level by improving stamina, endurance, strength, and vocal technique. Moreover, it addresses industry-wide challenges faced by vocalists and exercise professionals, offering solutions to vocal health issues and promoting collaboration. Further research is necessary to ethically visualize the larynx during exercise and establish consensus on the best programming methods and definitions for the integration of the voice and exercise fields. By pursuing these advancements, we can unlock the full potential of vocal athletes and pave the way for a healthier and more productive future in the intersection of voice and exercise.

5. Information and Consent Forms

Qualitative Study on Physical Exercise Regimens for Vocal Athletes Informed by Experts in the Field
Information and Consent Form

Researcher: Anna Holden
University of Wales Trinity Saint David
The Voice Study Centre - Voice Pedagogy Masters Program

Introduction:
Hello students and colleagues. For those that do not know, I am currently a Masters student in Vocal Pedagogy through the University of Wales Trinity Saint David and the Voice Study Centre. For this program, I have been tasked to undertake a research project on an aspect of voice coaching utilizing my students and network of teaching colleagues. Participation in this study is completely voluntary and will not affect instruction or any facet of our professional relationship. Please read and understand all research details below before consenting or withdrawing. I am more than happy and available to answer any questions or concerns you may have - my contact information can be found at the bottom of this document.

Purpose of Study:
This qualitative research study endeavors to advance the understanding and support of vocal athletes by creating a specialized physical exercise regimen informed by insights from experts in exercise physiology, voice, and vocal athletics. Through in-depth interviews with leading professionals in these fields, the study seeks to unravel the intricate connection between physical fitness and vocal performance. The primary objective is to develop a well-balanced exercise regimen tailored to the unique needs of vocal athletes. This regimen will then be implemented within a studio setting, where vocal athletes will share their perceptions, thoughts, feelings, and experiences. By employing qualitative analysis, the study aims to refine the regimen iteratively, contributing valuable insights to the broader fields of vocal athletics, voice science, and exercise physiology. The ultimate goal is to enhance the overall well-being of vocal athletes while preserving and optimizing their vocal capabilities. Participants will be fully informed about the study's purpose, procedures, and potential risks, ensuring their voluntary and informed participation in this groundbreaking exploration.

Study Procedures:
The study will unfold in a structured sequence of meticulously designed procedures, each contributing to the comprehensive understanding and development of a specialized physical exercise regimen for vocal athletes. Initially, experts in exercise physiology, voice, and vocal athletics will be engaged in one-on-one interviews to glean profound insights into the intricate relationship between physical fitness and vocal performance. These expert consultations will inform the subsequent phase, wherein a tailored exercise regimen will be crafted to address the specific needs and challenges faced by vocal athletes. The developed regimen will then be implemented in a studio setting, involving vocal athletes who will actively engage in the prescribed exercises. Throughout this implementation phase, qualitative data will be

systematically collected, encompassing the participants' perceptions, thoughts, feelings, and experiences. Rigorous qualitative analysis will be applied to distill meaningful patterns and refine the regimen iteratively. This structured approach ensures a holistic exploration, development, and evaluation of the exercise regimen, ultimately contributing to the advancement of knowledge in the fields of vocal athletics, voice science, and exercise physiology.

Duration:
The study is expected to span eight months, with three months dedicated to planning, literature review, expert consultations and regimen development, two months for implementing the regimen with vocal athletes and data collection, and three months for qualitative analysis, regimen refinement and reporting. This time frame ensures a comprehensive exploration of the relationship between physical fitness and vocal performance, facilitating the creation of a tailored exercise program for vocal athletes.

Risk to Participant:
The exercise regimen developed for vocal athletes will be carefully designed to prioritize safety and well-being. Participants engaging in the regimen may experience mild physical exertion, but efforts will be made to tailor exercises to individual fitness levels, ensuring comfort and minimizing the risk of injury. All activities will be supervised by qualified professionals, and participants will have the freedom to withdraw from the study at any point without consequence. Additionally, the confidentiality of participants will be strictly maintained, minimizing any potential psychological or reputational risks.

It is crucial to note that the expert consultants contributing to the study may possess intellectual property related to exercise and vocal training. However, any proprietary information or intellectual property shared during consultations will be handled with utmost confidentiality and used exclusively for the purpose of this research. The researcher commits to respecting the intellectual property rights of the experts, ensuring that any insights shared will be incorporated into the exercise regimen without compromising proprietary information. While participants will be informed about the general expertise of the consultants, specific details of intellectual property will not be disclosed to protect the rights of the experts involved. The study's procedures have been ethically reviewed to address potential risks, and participants will be thoroughly informed about the study's nature, potential risks, and their right to withdraw during the informed consent process.

Voluntary Participation:
Participation in this study is entirely voluntary, and individuals are under no obligation to take part. Vocal athletes invited to engage in the exercise regimen and share their experiences within the studio setting have the right to decline or withdraw at any stage of the study without facing any negative consequences. The decision to participate or withdraw will not impact professional standing or relationship with the researcher. Participants will be provided with detailed information about the study's purpose, procedures, potential risks, and benefits during the

informed consent process, allowing them to make an informed decision about their involvement. The voluntary nature of participation emphasizes the autonomy and rights of the individuals involved, and the practitioner is committed to respecting and upholding their choices throughout the duration of the study.

Professional Support:
In the unlikely event that participants encounter any issues or concerns during the course of this study, the researcher is dedicated to providing support and assistance. If participants experience emotional distress or require professional support beyond the scope of the study, they may contact Betterhelp online counseling services, a confidential external support service experienced in addressing participants' well-being, or a counseling call center of choice. It is essential to prioritize the physical, mental, and emotional health of participants, and the practitioner is committed to promptly addressing any concerns and facilitating appropriate support.

If participants experience any medical issues or injuries related to their participation in the study, it is crucial to prioritize their well-being. Participants are encouraged to seek prompt medical attention from a qualified healthcare professional. In case of immediate concerns, participants can contact emergency services or visit the nearest medical facility. It is important to note that online resources are not a substitute for professional medical advice, diagnosis, or treatment. Participants should consult with a healthcare professional for personalized guidance based on their specific medical situation.

Contact Information:
Please let me know if you have any questions, comments or concerns pertaining to the research project. I am reachable by email at anna.holden20@gmail.com or by phone at +1(630)731-7562.

Consent:
I have read the information above and understand the possible risks. I voluntarily give my consent to participate in this study conducted by Anna Holden towards her degree in Vocal Pedagogy through the University of Wales Trinity Saint David's Voice Study Centre. Please either return to the email above or hard copy. I appreciate your time and consideration.

Signature Name Date

Please sign below if you do not consent to participate in this research.

I _____ wish to withdraw my consent for this research. I understand that abstaining from participation does in no way affect my professional relationship with the researcher or my voice instruction if applicable.

Consent:
I have read the information above and understand the possible risks. I voluntarily give my consent to participate in this study conducted by Anna Holden towards her degree in Vocal Pedagogy through the University of Wales Trinity Saint David's Voice Study Centre. Please either return to the email above or hard copy. I appreciate your time and consideration.

[redacted] [redacted] 2/26/24

Signature Name Date

Consent:
I have read the information above and understand the possible risks. I voluntarily give my consent to participate in this study conducted by Anna Holden towards her degree in Vocal Pedagogy through the University of Wales Trinity Saint David's Voice Study Centre. Please either return to the email above or hard copy. I appreciate your time and consideration.

[redacted] [redacted] 2/26/24

Signature Name Date

Consent:
I have read the information above and understand the possible risks. I voluntarily give my consent to participate in this study conducted by Anna Holden towards her degree in Vocal Pedagogy through the University of Wales Trinity Saint David's Voice Study Centre. Please either return to the email above or hard copy. I appreciate your time and consideration.

[redacted] [redacted] 3 - 21 - 24

Signature Name Date

Consent:
I have read the information above and understand the possible risks. I voluntarily give my consent to participate in this study conducted by Anna Holden towards her degree in Vocal Pedagogy through the University of Wales Trinity Saint David's Voice Study Centre. Please either return to the email above or hard copy. I appreciate your time and consideration.

[redacted] [redacted] May 27 '24

Signature Name Date

Consent:

I have read the information above and understand the possible risks. I voluntarily give my consent to participate in this study conducted by Anna Holden towards her degree in Vocal Pedagogy through the University of Wales Trinity Saint David's Voice Study Centre. Please either return to the email above or hard copy. I appreciate your time and consideration.

[redacted] 6/5/24

Signature Name Date

Consent:

I have read the information above and understand the possible risks. I voluntarily give my consent to participate in this study conducted by Anna Holden towards her degree in Vocal Pedagogy through the University of Wales Trinity Saint David's Voice Study Centre. Please either return to the email above or hard copy. I appreciate your time and consideration.

[redacted] [redacted] June 10TH 2024

Signature Name Date

Consent:

I have read the information above and understand the possible risks. I voluntarily give my consent to participate in this study conducted by Anna Holden towards her degree in Vocal Pedagogy through the University of Wales Trinity Saint David's Voice Study Centre. Please either return to the email above or hard copy. I appreciate your time and consideration.

[redacted] [redacted] 06-13-2024

Signature Name Date

6. Interview Questions

1. Can you please share your experience and expertise in working with vocal athletes across different genres of music or performance?
2. What intake questions or assessments do you typically use to evaluate the physical condition, background and specific needs of vocal athletes when designing exercise programs?
3. In your experience, how do the backgrounds and training histories of vocal athletes influence the design and effectiveness of their exercise programs?
4. Are there any particular strategies or approaches you find effective in promoting overall physical wellness while supporting vocal performance longevity in your exercise programming for vocal athletes?
5. Can you provide insights into any specific challenges or considerations that arise when programming physical exercise for vocal athletes in different genres, such as classical, pop, or musical theatre?
6. How do you navigate incorporating exercises for vocal athletes that address both the physical demands of their performance and the unique requirements of vocal health and function?
7. Could you share examples of specific exercises or movement patterns you commonly incorporate into exercise programs for vocal athletes to enhance physical fitness while also supporting vocal technique and longevity?
8. In your experience, how do you prioritise exercises or training modalities that directly contribute to vocal health and technique while also addressing broader physical fitness goals for vocal athletes?
9. How do you adjust and modify exercise programs for vocal athletes based on their individual progress, feedback, and performance goals, particularly considering the dynamic nature of their vocal training and performance demands?
10. How do you approach and or adjust warming up and cooling down exercises for vocal athletes supporting vocal technique for the longevity of their career?
11. Have you encountered any common myths or preconceptions within the field?
12. What piece of advice would you give to vocal athletes, or even vocalists new to the field of VAcs?

7. Expert Interview Transcripts

Interview 1 (Interviewees 1 and 2)

Practitioner: I am a voice coach, I've been teaching voice for five years now, and I'm doing my masters in voice ped, which has been great. And I've always really been an athlete. I have seen a huge improvement, not only in my own performance, but in my self confidence, and my body awareness and all of that, when I do train, and when I am physically active. So I really promote that to my students. But I found throughout this master's, that there's just not a ton of research on the topic. And a lot of things really just relate back to the skeletal muscles and cannot be really specialised to the voice. So then I decided to get my CPT and my CES certifications, just to kind of give me a different scope, a different view of this. But then that's what sort of led me here to focus on this final module. And getting all of your different expertise. And, you know, experience is really, really invaluable to that. So I have some questions if you guys are up for it. I will say most of them are vocal athlete specific, but especially since the both of you have, you know, different viewpoints, I would love to hear what you have to say. And then if you have any questions for me, I'm more than happy to answer those as well. And then just one last thing is that, if anything makes you uncomfortable, or you don't want to answer, feel free to just let me know and we'll move on. Your participation is completely voluntary, and I appreciate it. Cool. Awesome. So can you please share your experience and expertise in working with vocal athletes across different genres of music or different performance platforms?

Interviewee 1: I probably have more experience in that particular aspect of things. So I work with folks who I'm both the speaking and the singing side of the world. Probably I would say maybe 75% of my people are singers or are people who are pursuing singing goals specifically, I work primarily well exclusively now in the contemporary commercial side of what we do. And I would say 60% of those people are musical theatre specific, as I coached between here in New York. And certainly there everybody I work with is musical theatre specific. But here, I also work with folks who front bands. And folks who are particularly concerned, sometimes I'll get referrals from people who are EMTs, or SLPs, who have specific concerns about vocal health and injury. I work with folks who are rehabbing from injury, vocally. And those tend to be singers. But I also work with trial attorneys, and with people who are executives doing keynotes, occupational voice users. And so that's, I've done that for about 15 years. So that's the sort of scope of the folks that I work with in the occupational voice use.

Practitioner: Amazing. And when you are taking on a, let's say, singing specific vocal athlete, are there any specific intake questions or assessments that you use to evaluate their physical

condition, their background or specific needs, when you design a exercise and also vocal regimen?

Interviewee 1: I personally have everybody complete the VHi 10. So if there are questions that like go beyond the what the scope of that, then I'll have them do the regular VHi. Generally, in the first like, 10, or 15 minutes of talking to someone unless I know they're coming specifically for the purpose of, you know, injury stuff, in which case, then I will ask them to have their, their scopes set imagery, any kind of images that have been done any kind of records or anything like that, that would be helpful for me to evaluate as part of what they're doing in here. A lot of the folks and I have reciprocation, like they just signed the form when they go already to their office or things like that. So there's an ability just to have that, you know, relationship. But the other thing I sometimes will do is just as I'm listening, as we're talking initially, I'll run through like a Gervase in my mind. Get our roughness, breath, noticing strain, all of those kinds of things run down. And so that's usually the kinds of things that I will do. If there that ends up being a question about something that is more physiologically related, then it's a lot of education in terms of sitting and talking about, like, you know, wire, you know, what have you been told by other people? That's a big one. What kinds of things have you been told? What kinds of cues have you been given by other people? What kinds of things have you you felt? If anything physically, what kinds of things have you worked tends to work for you and your experience? Very collaborative, kind of, like intake process in that way?

Practitioner: Yeah, absolutely. Interviewee 2 do you have anything to add on the more like, physical side of this?

Interviewee 2: Yeah, definitely. So same thing as an assessment really, in the beginning is the huge key. So just getting a baseline and having someone go through something simple, just so I can get kind of a baseline for where they're at, is kind of the biggest thing, you know, going through a park, you ask them about their lifestyle, you know, for me, it's always a diet. I always ask about their diet, their general, like movement patterns, their habits, that kind of thing, just so I have a good baseline, and then just taking them through a simple movement assessment, just so you know, I it kind of helps with the conversation as well. Just finding out what actually is working what's not, you know, if they do have any pains, a lot of times people forget things on intake form. So a lot of times it's best to do it in person. Yeah. You ask somebody, Oh, do you have something that hurts? And then they don't remember until like, you are actually physically doing it? So yeah, most of it happening, you know, in person, I think would be the main approach.

Practitioner: Absolutely. And do you have a sort of general assessment or do your assessments change if you're working with an artist versus working with just another personal training client?
Interviewee 2: Yeah. So for us like with this fusion, it's same thing for Interviewee 1 and I, it's like, fusing the two of our approaches is kind of the big thing. So with him his vocal standpoint, he has his own way that he works with People like progressing them on their own track. So for me, it looks similar in some ways. For me, I can, you know, track reps and I can track if someone's losing weight I can track, you know, if they're increasing volume, right? The amount of they're using all that stuff. So it's a little bit easier in some ways than tracking someone's vocal progression, because you're just like listening.
Practitioner: Exactly. It's more of that quantitative analysis versus a qualitative analysis and trying to blend the two.
Interviewee 2: Exactly. And so that's what Interviewee 1 and I were thinking even to with the vocal exercises and something developing a more streamlines assessments is kind of the big thing. So where we can actually track like, you know, how long somebody can sing? Or how much you know, breath capacity, they have that kind of stuff? Well, the tracking will be invaluable.
Practitioner: Yes, for sure. It would be incredible. And that was one of the things that I focused on in a previous study is that, you know, without the equipment, it's really, really hard to do that unless it's just timed, like you said, for the breathing exercises. But again, that is also so personalized, and so situational. Because the body is just a crazy instrument. But that's really, really cool that you guys are thinking about how to scientifically quantify the voice in a way that can be equatable. Between you know, the physical body and the vocal body, I think that's really, really cool. And we're also finding something that people will utilize.
Interviewee 1: Oh, right. Absolutely, for sure.
Interviewee 2: Complicated, but valuable.
Yeah, and something that doesn't cost a ton of money to be able to do would also be on that list of sort of limitations that we have now. Good,
Interviewee 1: I will say to you, when I have time, like with a purse with an individual or with a group or whatever, I will do like objective acoustical analysis, too. So I'll do a DBQ eyes and like, all those kinds of things, when there is this circumstance to be able to have, you know, a room that is calibrated for that kind of thing. And all of that, so I have the software to do all of those things. If it's something where somebody is like, looking to, to, you know, we're looking to do a

whole aerodynamic study, then we have facilities at [redacted] and things like that. Yeah, it'd be support that for that sort of purpose.

Practitioner: That's incredible. Okay. Which is nice that those exist. Yeah, yeah.

And allowing it to be accessible and, you know, usable, and equatable, all of those things are, I think, is where this field needs to get to, it's just that taking that next step. Right. Good. And then in your experiences, how do the backgrounds and sort of training histories of vocal athletes affect or influence the does the design of the programs that you specifically write for them, or implement with them?

Interviewee 2: I would say so far, one thing that we have definitely noticed, or as, as we iterate the program, this program is specifically is that, you know, it's it's difficult, we're, you know, it's figuring out how to how to section the different the ways in which we offer these. So for example, you know, is it offered by physical ability and so thus it is sort of it is set up to be, you know, what kind of what kind of workout can you handle, physically? Is it set up to be, you know, where are you at, in your vocal journey in a group and speaking in a group context, right, obviously, because, you know, initially the very first the very first one that we did, as a group workout, for example, we focused on endurance, and out of the, I don't know, 10-12 people that we had there. Like two of them were like, that was a really nice beginner workout. About six of them were like, I there's no way I could ever finish that. And then the folks in the middle were like, yeah, it was you know, so it was it was interesting in the sense that it figuring out you know, always how to decide you're going to section and, and calibrate each of those. So that feel that people feel successful, right.

Interviewee 1: You know, when they have left Because for voice people, this is something that as you know, is very much an adjunct, like they are seeing this as it has to be such a value add in order to take an additional hour out of their week to do something like this, right? It's kind of they feel like I could do, you know, I got through, you know, 60% of everything, I feel really good. There's not going to be a voice person, they're gonna be like, I couldn't do 2% of it. I'm done. Exactly. So I think it's that kind of framing. And, and sort of figuring out exactly how that gets planned in a group situation certainly write, you know, to section off.

Practitioner: Yeah, and even you know, finding that perfect balance for an individual is also hard, you're writing a program for another person, you don't know exactly how it feels for them, all you can go off is their perception and how they explain it. So, I mean, even on an individual level, and a group level, it's hard to find that balance of the fields, I would say, Are there any particular

strategies or approaches that you find effective to promote overall physical wellness while supporting, you know, vocal longevity, vocal performance? Within the exercise programming?
Interviewee 2: Yeah, I would say, keeping it's more simple, I think is the best approach. Most people they're not moving around when they're singing. In general, you know, when someone sees Interviewee 1 in general, or maybe you you as you've been a vocal coach, then you're not having them move at all. So for us, we were trying to develop exercise program that was an hour long, get a workout in and also feel like you are training your voice, but it did kind of seem like it needed to be a little more simplified a little more controlled movements. So that's the big thing, like, it's, you can't have the exact same type of exercises that you would do in a normal group fitness class. And we were, that was like the iterating that we had been doing. Like, we started out with more classic style movements, but they kind of need to be simplified just a little bit just so people can start to build awareness around what it feels like to have like the the dance between their voice and movement and getting out of breath and all of that stuff.
Practitioner: Okay, can you give me an example of the exercise, and then the sort of simplified version or the modified version?
Interviewee 2:
Yeah, so you can say, like a squat, like you have somebody doing, we, in our first exercise, we had more endurance. So it was, we were doing more a little bit more jumpy type things, not even someone didn't have to jump, you could just go onto your tippy toes, if you wanted to reduce impact, but just getting more of a controlled squat, you know, it's still you're still working on endurance in this kind of scenario, especially vocally, because most people that can't even do it at the base level. So it's like, it's still going to be progressively overloading their capabilities. So it's just like, slowing it down, making it a little more control a little more isometric type movements. That was beneficial for us, like just moving into different type of modules for us just focusing on stuff that's a little less jumping around. Yeah. Because it's not about just getting your heart rate up to you know, we don't want to go to like max heart rate. Of course, during an exercise like this, we were staying pretty moderate. But even going lower, just because people can lose control of their voice relatively quickly, it seems. And it's, again, a balance finding that space in which everything stays within control, but you're still finding that progressive overload aspect, you're still getting your heart rate up.
Practitioner: And especially, I found with musicians there's and again, this is not for everyone. But I also feel like in the United States, you either grow up an athlete, you grew up as a musician. And within athletics, you learn you know, your kinesthetic awareness, how to

coordinate different parts of your body where in music, you don't quite get that same education. So it's again, finding those movement patterns that feel natural, but also support the movement that you're trying to create. And then also support the Ways. So having that sort of learning curve is definitely something that is hard for me to teach sometimes, again, bringing it down sort of just to the basics and the baseline, instead of jumping right in.

Interviewee 2: Yes, when you get a client, a lot of times, they don't know what they're doing movement wise, which I get clients like that even just for movement type stuff, too. But you're right, yeah, in a group setting. For us, it was mostly people that are working on their voice, they didn't necessarily have an athletic background. So we're dealing with people that really don't have a baseline body awareness at all. And they don't really know what their bodies are doing. They don't know what their posture looks like, you know, all of that stuff. And it's very apparent. So really focusing on pushing that right with effort. So that's why like back to like the slowing things down, getting somebody to do something slowly, and then talking about what it feels like for them just constantly kind of checking in building awareness around that absolutely is probably going to be like the best approach. Because if you can have somebody become more aware with their bodies doing it, inevitably, you've given them a lot of right.

Practitioner: And again, it's that awareness, being cognizant and present in the motion of the movement. Not only physically, but vocally to and being able to have the skill acquisition be a conversation rather than just, you know, do a squat? Well, how do I do that? Right? Rather, it'd be like a drill sergeant. That's where That's where I'm coming from, with a lot of my, you know, newer movement, musicians.

Interviewee 1: I also would add to that, I think that in our case, to, you know, the people who can afford financially and timewise, to take the time to come and do something like this are often older. And so we did have a very wide range of folks who were younger, to older, and probably at least a third of the people in our first group of folks were, you know, fell in an age range. And also, you know, gave feedback that, like, they just weren't able to do a lot of the things with their joints. And so they're, I think that there's also again, this is another thing about like, how things are sections are segmented, there's the word I was looking for that whole time, in terms of how the, you know, the population of a given class, because, again, there were just some of the things that we were doing in that first session, for example, that endurance session, that we got a few folks who, who said, you know, we probably wouldn't be inclined to come back, specifically, because we felt like there were so many things that were hard in our joints. But of course, then you have folks who are younger, who are like, I want to do 20, more burpees. So

it's a difficult, you know, yeah. thing in that regard, too, I think beyond and just again, I bring that up mostly in the context of this population of people who if they're going to invest more in something that involves their voice training beyond weekly class, lessons, dance class, whatever it is that they're doing, aside from that, that, then it has to be something they feel like they got it what 100% Like, we're able to do everything from Absolutely, that's the that then is that that that balancing point with that age demographic.

Practitioner: right, right. And then that brings up, you know, previous injuries, how to, you know, make something accessible to any individual, like muscle imbalances, or they hate the way some exercise makes them feel, right. But being able to cater to all of those needs of the vocal athlete in a way that's, you know, not restrictive, but also is. Accessible and adjustable while still individualized, right? And having all the tools in, you know, a coach's toolbox to be able to pull out exercises sort of here and there to modify or adjust based on their individual needs or requests feedback or even performance goals or demands, I would say.

Interviewee 2: Yeah, and I even think from the other end of the spectrum, you can go from the simplified to the progression rather than doing the really aggressive movement and then Add to that. So sometimes I feel like in a group setting, it's almost better to do that. Just be like, this is the movement we are starting with this is your baseline, and then show like the progressions if a more athletic person wants to go down that route, what we found is most people didn't even need that more aggressive approach, because most people couldn't sustain their voice, with hardly any movements. I mean, it's, it's super hard. I knew I could, like just leading the class, I felt like I was.

Practitioner: Right. And, you know, on the other end of the spectrum, I've also been looking into voice disorders of exercise professionals, I mean, that's also a huge area in which this field can, you know, provide insight to the exercise, field and exercise professionals. Which is a totally other topic that we could get into at another time. But in your experience, how do you prioritize specific exercises or training modalities to directly contribute to vocal health and vocal technique? Would you say?

Interviewee 1: A lot of it is reading literature. And it's interesting, because even have you talk to Claudia Freelander?. So even Claudia is, you know, the person who kind of wrote the book and literally wrote the book, and all of that, you know, is rewriting her book, because she was like, wow, what I read before isn't really what I think anymore. And I think I think that it's it's applying, for me, it's, it's whenever it's about reading or taking a workshop or something like that, about any of this kind of thing. It's that applying recent frameworks to that sort of thing, as opposed to

just taking because, of course, this is such a burgeoning field, which is exciting that you're working on it in such a burgeoning field that even the things that have been the primary source materials for X years or whatever, now are completely being revised because of new information. And so I think that again, it's it's kind of like what [redacted] said, it's about being intentional, but also simpler first, and remembering that for a lot of folks, even if they have had, since you know, a lot of the folks I work with their musical theater focus. Very often those folks had did not have formal training, for example, in dance or formal training in voice even, or they came to musical theater from the acting side of the voice side of the dance side. And they feel weak in one or more of the others. And, and so I think that even when you have someone who is kind of like, seemingly kinesthetically aware from what they can do on stage, it's often a fake it till you make it way that they got there. And so it's coming back and saying, Okay, well, can we also recommend other experiences like yoga class? I mean, when people ask me, like, if I could do one thing at all, for my voice, I always say, find a good yoga class, find a good yoga teacher, that is the number one thing you're possibly going to ever be able to do for the longevity of your voice for the sustainability of your voice for the quality and resonance of your voice, most likely. So I think, for me, it's, you know, keeping abreast of the research and also the practice, but not taking for granted that what is out there, even if it's fairly recent, in academic terms, is still even what an author thinks, right? Given a very, very fast you know, influx of, of everything that's, that's happening.

Practitioner: Yeah, absolutely. And I completely agree with you. I was a classical voice major, all the way through college. But in a voice lesson, you're so focused on your vocal technique, you're standing you're, you're focused on posture, yes. However, when you get up on stage and you're supposed to, you know, do musical theater or performing opera. Again, it's a fake it till you make it, you have to be on stage to get that feeling. But how do you train that feeling to be natural? How do you train that in endurance and stamina in a way that is not just forcing it because you're onstage, but also finding the balance with that technical side that you've worked so hard for in your lessons?

Interviewee 1: Yeah, and what's interesting for me is I know I noticed something that is true for me for sure when I'm working with folks that says that, you know, at 70% of the time I'm coaching people on auditions. And so we are prepping in ways that do not move around a lot. But when I'm working with someone on performing, and it's not in an audition context, and we're moving around all the time on the trampoline on the yoga ball on that, yes, like, so it's so it's interesting, because it's a little bit by virtue of what I do, specifically. And the audition component

of it, or even when I'm working with like, attorneys, you know, the the stand in place aspect of it, that then ends up becoming a situation that is almost by by professional discipline is geared toward this exactly. Moving around, do you know, it's an interesting, interesting dichotomy?
Practitioner: Yeah, absolutely. And I think it also, you know, vocal specific it, um, the genre that you're in really, you know, limits that. I mean, A majority of my voice training was to park and bark. You park at the piano and you bark from there. Right. But how beneficial is that not only for my posture and my body, but also for my voice. So sort of freeing that up in a way that, you know, is fun and intentional, um, is what I've been looking to get out of all of this, not only for myself, but for my students and for my athletes. Going off of that, last question before we sort of wrap up here, um, Have you encountered any common myths or preconceptions with different genres, different performers, different sort of training modalities?
Interviewee 2: Like within, from the people that we've worked with so far? Yeah,
Practitioner: Or like from the literature that you've read, sort of incorporating these two fields.
Interviewee 2: Yeah, when you think about like, progressive overload and stuff, I think, Like you almost think of movement and like getting stronger and building muscle as with strain. It's kind of like simultaneous but in the voice you like don't strain, right? Yeah, you're not supposed to so that's really interesting. Like, you know, it's not like you're building strength in that sense. It's kind of a lot of release. Of course you're like building strength in the diaphragm and that kind of thing, but it's like not straining. You are still trying to build some kind of muscle. Its hard to get people to be aware, like back to the body awareness thing. It's just back to that, like making sure you're checking in with people like, okay, yeah, maybe you got a little bit farther without, but were you straining? That kind of thing. Absolutely. So it's like constant check-ins.
Practitioner: I was told multiple times. In college and before that if I worked out there would be tension in my voice and I was like, I, you know, have to go to class for 60 hours a week. Also have to work a job. Also have to perform. How am I going to stay healthy without? You know, moving my body somehow, but what's going to suffer here? It's almost like I either have tension or I'm too relaxed or whatever. It's again, finding that balance that I don't think many people think about between the two. Like it's either tension. Whereas you have to find the balance between the two, to have integrity in your body and integrity in your sound.
Interviewee 1: It's really hard. Yeah, especially when you're on stage. When you're on stage, too, and you're nervous or something, everything changes, like you said. Absolutely. Yeah, you have to know what it feels like to be tense, you have to know what it feels like to not be tense, and then find the middle. Right. Um, and like you said, that you can't strain within your voice,

but, I mean, sometimes you just, you have to be okay with knowing what your boundaries are. That sort of kinesthetic awareness, you know. I think for me, it's, um, you know, the constant mythos is the whole, you'll feel it here when you're doing it this correctly. You'll feel it here when you're doing it correctly. And I think that the strides that are being made with the whole, like, mode 0, mode 1, mode 2 versus calling things imagery based. Um, things that have nothing to do with what's actually happening, um, are really great strides toward that, getting much more specific than saying head voice, chest voice, um, you know, just these terms that have been around for forever, but that mean very little in reality. Um, I think that those are, are some of the best, um, paths forward that we have not only for lack of confusion. On a given, um, individual's part as to what's actually occurring physiologically, but also Um, as a means of, um, abating comparison, um, while so and so says they feel this. And so I want to sound like them and I'm not feeling that. So that must be mean, I'm doing it incorrectly. Um, so getting rid of all of that sort of, um, uh, thought process while keeping, you know, imagery that works for people, but that isn't detrimental.

Practitioner: Right. And having it sort of be an addition to what is actually physiologically happening. Um. And I definitely think that way as well. I am not a huge imagery person. I am more so like, how does it feel to me? What am I getting from that? And again, this leads back to the whole sort of more quantitative versus qualitative aspect of this field that we're all just, you know, getting into.

Interviewee 1: Right.

Interviewee 2: Absolutely. Absolutely.

Practitioner: Um, well, good, are there any last Things that you'd like to say?

Interviewee 1: I don't think for me, I think what you're doing is amazing. And, um, you're part of a, you know, of a frontier of folks who are really moving the needle on all of this in a, in a really important way.

Practitioner: Well, thank you so much. And you guys are incredible for, you know, giving me you time and your expertise. Um, so I will be in touch with the data from this. And if you have any other questions or, um, anything you need from me, please feel free to reach out.

Interviewee 2: That sounds awesome. Awesome. Thank you so much.

Interview 2 (Interviewee 3)

Practitioner: Thank you for taking the time to meet with me. I am really looking forward to your expertise and experience, just a few administrative and ethical tasks to start us off here um just

a reminder that your participation and answers are completely voluntary and confidential. If you do not want to disclose an answer or want to end the discussion, just let me know no harm no foul. Are you ready to get started?

Interviewee 3: Awesome yeah let's do this, I appreciate you inviting me to speak uh on this and I hope it's helpful.

Practitioner: Absolutely, I am sure it will be, thanks. First off, would you mind sharing your experience and expertise working with vocal athletes across different genres or performance?

Interviewee 3: Ya of course, uh I have been a movement specialist, specifically a Certified Strength and Conditioning Specialist, a Functional Range Conditioning Specialist, and Neurokinetic Therapy Practitioner and I have worked previously with professional athletes uh more than musicians until I met my wife [redacted] who is a singer as you know and uh she inspired me uh to start this journey looking into and working with singers, vocalists and musicians, uh to navigate different bodily and technical aspects and I first was just helping her and we saw a lot of progress and progression in her range and flexibility and ease and so it uh I guess inspired us to use my knowledge of the body and athletics and science and biomechanics of all of it to help vocalists and even uh instrumentalists um reach their full potential with athletics and voice. So I don't have voice training, like I know you can hear, but I now take voice lessons too to um really get both sides. But me and [redacted] really make a good team and balance uh eachother out with our business and helping musical athletes to avoid injury and improve overall performance of the craft.

Practitioner: Wow, what a cool backstory and it is great that you can lets say meld both of your professional worlds so well to help other musicians. I think it is super beneficial as I am sure you have experienced too. We will get to that soon, but, um, let's start with the beginning. What intake questions or assessments can a coach use to evaluate the physical condition, background, and specific needs of vocal athletes when designing exercise programs?

Interviewee 3: Oh, sure, definitely of course. So, when it comes to assessing vocal athletes, it's really crucial to get a comprehensive understanding of their current physical condition and even just how they normally carry uh tension or um stress in their bodies with ya know compensations. You know, we start by asking about their existing exercise routines. Like, what kind of workouts are they doing right now? Are they hitting the gym regularly, doing cardio, or maybe something like yoga? And injuries or medical conditions, that's a big one. We need to know if they've had any injuries in the past or if they're dealing with any ongoing medical issues. This could be anything from postural issues, or vocal strain to, I don't know, respiratory issues or

even joint problems. It's essential to get a clear picture so we can tailor their training program to avoid aggravating any old injuries or creating new ones and then go from there creating a plan that targets compensations or imbalances too. Their vocal performance schedule is another key area. Are they performing every night or just a few times a month? Knowing their schedule helps us understand the physical demands they're under. Like, are they on tour, singing several nights a week, or do they have longer breaks between performances? This changes how I would program for them, just like I would a professional athlete on season versus their off season ya? And then, of course, we dive into their goals. What are they looking to achieve with their training? Do they want to boost their endurance so they can, you know, power through those long performances without getting winded? Or maybe they're looking to build strength to improve their stage presence and support their voice better. Oh yeah and flexibility is also a common goal, uh especially for singers who need to move a lot on stage or who are involved in more physical performances like musical theater. For every singer a full-body scan is super important. We take a close look at their body shape and structure to notice their posture, ribcage expansion, pelvic floor, and any other bodily tension or imbalances. This scan helps us understand how their body is aligned and how they use it during performance and how when they're under stress and load they manage all the demands of the role. For example, is their ribcage expanding properly when they breathe, or is there tension in the pelvic floor that could be affecting their support and breath control? By seeing these issues and connecting it to the history we get, we can tailor their training program to address any imbalances and improve their overall performance and health. So, yeah, it's all about getting a well-rounded view of where they're starting from and what they're aiming for. That way, we can create a program that's perfectly suited to their needs, helping them reach their performance goals while staying healthy and injury-free.

Practitioner: Got it. Wow exactly, that was very detailed, thank you so much. Yes it really seems that you uh view the singer as a whole and as an athlete from the start. That is not how I was taught or trained for example like I was taught that my breath and vocal tract were the entirety of my instrument as if that made any sense, but that is so far from the case. It is refreshing to hear that. I know you just uh touched on this a little, but how do the backgrounds and training histories of vocal athletes influence the design and effectiveness of their exercise programs?

Interviewee 3: Yeah, that's a great question and I can definitely go on and on about this. When it comes down to it the body is a map of the individuals history, so if you think about it that way it has to be trained in a way that connects to that. So, uh, vocal athletes with a background in

classical singing, for instance, tend to have specific needs that are different from, say, those in musical theater. Classical singers usually need a lot of breath control with light to moderate abdominal contraction because their pieces often have long, sustained phrases and require a lot of, um, vocal precision. Going deeper on a physical and anatomical uh level they have abdominal aponeurosis to contract at a gradual rate with the ribs staying open longer. They can really benefit from low load high volume activities and aerobic exercises that help improve lung capacity which is great for controlled breathing. On a tissue level a majority of strength training is focused on fatigue resistance of these muscles which I know you know slow twitch or aerobic muscle fibres. Here it might be best to do aerobic cardio with random birsts of elastic anaerobic activities to have a low load tissue tolerance and extend vocal endurance to lower chances of support compensations. On the flip side, musical theater performers have a whole different set of demands. They're often dancing and singing at the same time, which is super physically demanding. For them they need fast hard exhales and a stiffer and faster contraction. Hey have shorter phrased uh repertoire and quick pressure changes. Not that opera doesn't and you know cross training is super important but so, you might have them doing interval training or circuit workouts that combine strength and cardio to mimic the stop-start nature of a musical performance. And then, there's the aspect of tailoring their programs based on their training history. If a classical singer has been doing a lot of static, breath-focused exercises, we might introduce more dynamic movements to enhance their physicality without compromising their vocal technique. For musical theater folks, if they've been primarily focusing on dance, we might incorporate more targeted strength exercises to build muscle endurance and stability. It's really about understanding their past experiences and the specific demands of their genre. You know, someone who's been trained in opera is going to have a different set of challenges and strengths compared to someone in a Broadway show. This historical insight helps us create a training regimen that's not just effective but also sustainable, ensuring they can perform at their best without risking injury or vocal strain. So yeah, their background plays a huge role in how we design their training programs.

Practitioner: Yes yes absolutely, I love that you went on so many different levels with that response, from muscle fibres to program creation and the demands that each uhm singer has to meet you know. It is going to be super helpful when I am creating this regimen for the vocal athletes that I work with you know to try out and get their feedback with. Are there any particular strategies or approaches that you find effective in promoting overall physical wellness while supporting vocal performance longevity?

Interviewee 3: Oh yes absolutely. One effective strategy is to, you know, integrate both aerobic cardio and strength training, but we have to be really mindful of not overdoing anaerobic cardio because it can, um, lead to tension in the body. It's crucial to incorporate specific breathing exercises and mobility work into the regimen. For instance, relaxed side-lying movements are great because they help to relax the ribcage and improve inhalation capacity. This can be particularly beneficial for singers as it enhances their breathing efficiency in a way that is light weight bearing and then they can progress with a weighted or stacked standing posture. Incorporating regular strength training exercises, like tempo-based split squats and heel-elevated goblet squats. Overall you know these exercises can decrease pelvic floor tension and increase range of motion, which is really important for maintaining a balanced and flexible body but it is also important to notice that they super helpful but also they need to be done like everything else in moderation. Lower repetitions with alternating activities that allow you to keep pace that allows for nasal breathing capacity throughout work are super beneficial. Another good practice is doing steady-state aerobic exercises with nasal breathing, which not only improves lung capacity but also ensures that you're maintaining a good balance without creating too much tension or quick sprints too to get the body under more demand so that the body and heart rate can recover quicker similar to performance demands. We also focus a lot on, um, the quality of movements and ensuring they support overall wellness and vocal performance. For example, exercises that promote thoracic and pelvic expansion, like gentle rib movements and side plank pulses, are essential for maintaining vocal health. It's really about finding the right balance and making sure that the exercises are functional and directly related to the demands of their performance. This holistic approach helps in supporting both their physical health and their vocal performance, ensuring they can perform at their best without risking injury or vocal strain. In the end training upper and lower body and cardio is to help to resist fatigue onset, especially in the chest and obviously the airway, and this will uh greatly extend vocal endurance and lower chances of vocal support compensations during stressful performance

Practitioner: Yes yes thats great and makes total sense, again thank you for all of that detail! Going on with my next question for you, what specific challenges or considerations arise when programming physical exercise for vocal athletes in different genres, like classical, pop, or musical theater?

Interviewee 3: Yeah, each genre has its own demands as I have said already uh. Classical singers might face the challenge of maintaining breath control and vocal stability over long phrases, so their programs should focus on, um, aerobic conditioning and gentle strength

exercises that do not compress the ribcage. They might benefit from steady-state cardio and light resistance training to build endurance without adding unnecessary tension. Pop singers, on the other hand, often have more dynamic and varied performance styles, so they could benefit from mixed cardio and high-velocity strength training to build explosiveness and fatigue resistance. For them, it's about being able to handle quick movements and maintaining vocal power. Musical theater performers need a different approach since they have to sing and dance simultaneously. Integrating exercises that support both, uh, cardiovascular endurance and muscular strength is key. They need to be able to move fluidly and sustain their vocal performance, so a mix of functional training and cardio is really important for them. So, it's all about tailoring the exercises to meet the specific demands of each genre while ensuring overall physical and vocal health. All of these genres uh are classified as high velocity, high duration but low load sports I like to say. So super high level of slow strength that we see in the deadlift or bench lifts are not important. It is better to have low or even moderate load fatigue resistance so that when the performance is demanding and long, the musicians bodies have a sort of buffer to compensations that arise and also have that you know elasticity and recoil in their vocal support. That I have noticed is a big challenge in programming and how many other exercise uh professionals without vocal knowledge try to program and it doesn't seem to help. It is not all about the weight. Recovery is a biggie for me too. I would say that a weekly break down in a program needs to have days of tension stimulation and tension reducing in order to not overwhelm the vocal practice. [redacted] sorry going to put a little plug, coming out in [redacted] I mention that the first step for any performer in programming is to create space, by noticing and reducing compensations by tension and stress or stiffness in the body. Then with that the program needs to cultivate or open said space. Then comes the fun part of challenging the space with progressive stress, in exercise science terms, progressive overload I'm sure you know uh and then we get resilience under the stress, which then you now helps in performance instead of accessory or compensative motions as you fatigue. Progressive overload, used in a smart way is the key to all of it as I'm sure you have experienced and played with.

Practitioner: Incredible yes I one hundred percent agree, it really does all make sense when you put it that way. I think you have basically already answered this in previous answers, but how do you go about navigatinging or incorporating exercises for vocal athletes that address both the physical demands of their performance and the unique requirements of vocal health and function?

Interviewee 3: Well, it's all about balance and, um, ensuring the exercises are functional and supportive of their vocal needs when it comes down to it. For instance, we really emphasize aerobic cardio to improve lung capacity without causing excess tension that could interfere with singing. Strength training, if done correctly, is tailored to enhance muscle endurance so that the body does not compensate during longer durations or performances and, you know with that, support proper posture and breath control. In general e stay away from exercises that place heavy loads on the shoulders or anything that might create unnecessary tension in the thoracic area or that could compress the ribcage, because that becomes you know counterintuitive and also super heavy slow movements with both legs grounded like heavy squats, deadlifts, presses are also not great because they have too long of ground time and are less elastic. I would incorporate tempo squats or single leg movements or even heel elevated modifications. In other words, I always like to opt for movements that enhance flexibility and coordination. This also might include things like hops, skips, box jumps and jumping sprints for cardio conditioning and explosiveness, or unilateral upperbody and lowerbody alternative lifts like I said. And we also incorporate a lot of breathing exercises in different stances to keep the ribcage and pelvis flexible. It's really about creating a well-rounded regimen that supports both physical health and optimal vocal performance without overloading the body with stress or tension.

Practitioner: That is super helpful, thank you. I have heard so much about the bracing and uh valsalva maneuver and it seems pretty self explanatory with not wanting so much thoracic pressure and subglottic pressure you know, but this went really in depth to the other side of things instead of just the breathing during lifting movement. Yeah you went into this next question, but can you share examples of specific exercises or movement patterns you commonly incorporate into exercise programs for vocal athletes to enhance physical fitness while also supporting vocal technique and longevity?

Interviewee 3: Sure. Some go-to exercises include, um, tempo-based split squats, heel-elevated goblet squats because they really help decrease pelvic floor tension and increase range of motion. I also use a lot of single arm or leg, alternating press and push movements, like rows in different stances and overhead presses for upper body and single leg dead lifts or split squats and lunges. There is a lot of range in what can be done, it is just being mindful of what stress the body is under so that it doesn't get in the way of you know vocal performance or the demands of the role. I uh also incorporate relaxed side-lying movements to improve rib cage flexibility and inhalation capacity like I said, which is super important for singers. For cardio, we focus on steady-state aerobic exercises with nasal breathing since that can be very beneficial

for lung capacity and overall stamina. We might also throw in alatic threshold intervals, like 20 seconds of maximum work followed by 1-2 minutes of rest for a lot of sets, to improve endurance under fatigue and not become fully anaerobic. And, um, exercises that promote full-body coordination and flexibility, like gentle yoga or pilates, can be really helpful too. I would say that yoga is probably the most beneficial practice for a singer. One hundred percent. It comes dow to yeah It's all about creating a balanced routine that supports their physical health and enhances their vocal performance.

Practitioner: Thanks for going more into that, it is nice to be able to have a sort of idea of how best to go about this and test it for my vocal athletes if that makes sense. Next thing I want to ask is how do you adjust and modify exercise programs for vocal athletes based on their individual progress, feedback, and performance goals, considering the dynamic nature of their vocal training and performance demands?

Interviewee 3: Well, it's important to, like, regularly assess and adapt, just like with any progressive training or learning adventure, uh. Based on their progress and feedback, we might adjust the intensity and volume of their workouts to better suit their current needs. For instance, if a performer is preparing for a particularly demanding role, we might increase the focus on, uh, high-velocity strength training and aerobic conditioning to build up their stamina and explosive power. Conversely, if they're experiencing fatigue or strain, we'd incorporate more recovery and mobility work to ensure they're not overtraining and to help them bounce back quicker. It's also crucial to, like, check in on their mental and emotional well-being because stress can really impact physical performance. Recovery is what I really like to harp on. We might even look at their nutrition, sleep, hydration and even lifestyle habits to make sure everything is supporting their overall health. It's a dynamic process that requires constant tweaking and fine-tuning based on how they're feeling and performing.

Practitioner: How do you approach warming up and cooling down exercises for vocal athletes to support vocal technique and career longevity?

Interviewee 3: Warm-ups and cool-downs are, like, absolutely essential, you know. For warming up, we always begin with total body scan and possible foam rolling to release any tension, followed by those ground-based breathing drills to really open up the ribcage and pelvis. And then, we wrap it up with some short, intense activities to get that nervous system fired up and ready to go. Then into a routine either vocal or exercise related. When it comes to cool-downs, we focus on relaxed side-lying movements to really calm down the ribcage, gentle stretching to ease any tightness, and, uh, steady-state aerobic cardio to help them recover and keep that

airway nice and open. I would say that I am a huge proponent of pre and post vocal and physical breathing activities in order to cultivate you know the support that singing needs. This can be done even with a or during a vocal warm up, it doesn't have to be to intense but the body has to be upregulated and the muscles necessary need to be turned on as I say and connected to the brain and the vocal body. It's all about setting the stage you know for a productive session and uh making sure they leave feeling refreshed, relaxed, recovered for whatever comes next.

Practitioner: Ok awesome, uh last question I want to ask your thoughts on, what common myths or preconceptions do you encounter when it comes to training vocal athletes?

Interviewee 3: One major myth to debunk is this idea that strength training is harmful to the voice. I would say it is uh a valid concern that it causes excess stiffness, but it is important tot understand that unfamiliar movement patterns cause excess tension or stiffness. This is because the body must expend you know more resources to adapt to new movements and will manifest in more tension, soreness and nervous system fatigue. That is why I am not an advocate for orange theory or body pump classes because they have a different workout each session and the body cannot progress. Progressive overload is key. Training uh actually, it's quite beneficial because it enhances how muscles use oxygen, which is crucial for maintaining vocal function under pressure. Another misconception is that simply singing alone builds enough endurance for demanding performances. Strength training can really cut down on fatigue during those high-stress shows. Additionally, some believe that vocal warm-ups alone are all that's needed that is just nonsense to me. The body needs to be upregulated and optimal breathing and bodily control and awareness do not just come from vocal focused exercises or breathing in a stacked, singing position. But incorporating aerobic intervals near VO2 max like jumping for 2-4 minutes can really boost vocal capacity and get the body ready for work. And let's not forget like I have said before and gone into, not all cardio is bad for singers; steady-state aerobic exercises with nasal breathing are fantastic for building lung capacity and stamina over time.

Practitioner: Right, I have experienced some of those myths first hand and that is actually one of the main reasons why I decided to take on this study to help debunk some of these myths and figure out how best to support vocal athletes and my own VAc and uh performance journey you know. Thank you for these insights. This has been really informative. One of my favorite parts about this research is that I have had the opportunity to uh you know network and get to know some of the big names in the field on a professional level and I think it is amazing not only for

this project, but for the field which you know is up and coming and has a lot of impact yet to come. So thank you again it has been really great and helpful to talk with you.
Interviewee 3: No problem, happy to help. You know where to find me if you need anything else uh now with this project or in the future.

Interview 3 (Interviewee 4)

Practitioner: Thank you so much for taking the time to meet with me, um, ethically I have to mention that your participation is completely voluntary and you can withdraw consent at any time. You are also not obliged to uh answer questions you are not comfortable or at liberty to share. Are you interested in continuing?
Interviewee 4: thanks for that, yes I am happy to help.
Practitioner: Amazing, alright, let's dive in. So, um, first off can you please explain your experience and expertise working with vocal athletes across different genres or performance practices?
Interviewee 4: Yes absolutely, thank you for asking. Even having had a performance career, I am not the biggest fan of being in the spotlight, but I found a true passion with teaching. I love investing in people and I also wanted to invest in the future of what we do as artists. I have been teaching for about 14 years now at the collegiate level and it is great to able to see them come in fresh as first years and be able to guide them to make the healthiest choices for them and their craft. Yeah, uh I became interested in the field of vocal athletics and the idea of fitness training and the singing voice mainly through opera. It started as a you know personal endeavor with my own performance and my um lifestyle that I needed to upregulate in order to keep up with all of the performances I had and all of the roles I had to portray and embody. When it comes down to it as I'm sure you know, opera, and vocal performance in general, is uh super taxing on the body and I wanted to be able to harness my body instead of experiencing a lot of fatigue. Overall leading me to the best I can be. As a professor, pedagogue and clinician, um now I guide operatic students to use these tools to get to foster a connection with the full singing body in a healthy and sustainable way with using you know exercise science and physical exercise.
Practitioner: Yes, I definitely understand that, and my personal background in opera and athletics is what started this journey for me too. I was in a bit of a predicament when I was told the myth that I could not workout without causing harm to my voice and my performance career. It stuck with me and has been something to adjust and also research for my career and for my

students. But I think that it is wonderful how supportive and invested you are with your students, their voices and their holistic health using physical exercise. Ok, next question, what intake questions or assessments can a coach use to evaluate the physical condition, background, and specific needs of vocal athletes when designing exercise programs?

Interviewee 4: Ah, sure thing. I tend to do a full vocal assessment beforehand but specifically when working with vocal athletes, I always start by asking about their current vocal and physical routines, any history of injuries, and their general health during the vocal assessment. It's crucial to understand their performance schedule and specific goals. For example, are they looking to improve breath control or stamina? Also, questions about their past training experiences—both vocal and physical—are really helpful. First, I like to dive into their daily routines. I'll ask, "Can you walk me through a typical day? How do you warm up your voice? What kind of physical exercises do you do?" This helps me see if they're already incorporating some form of physical training and how it aligns with their vocal practice. The integration of fitness training into the lifestyle of singers is increasingly prevalent due to industry demands for physical appearance and stage movement. If they're doing a lot of cardio, I might suggest adding strength training to balance it out, or vice versa. Strength training can benefit singers by improving respiratory strength, stamina, and overall physical health. I focus on their injury history. "Have you ever experienced any vocal strain or physical injuries?" This is key because even a minor injury can impact their vocal performance significantly. For instance, if someone has had a shoulder injury, it might affect their posture and, consequently, their breath support. I also need to understand their general health, so I ask, "Do you have any ongoing health issues or are you on any medications?" This question is essential because some medications can dry out the vocal cords or affect energy levels, which can impact both their vocal and physical performance.

Performance schedule is another critical aspect. "How often are you performing or rehearsing?" I ask this to gauge their workload and recovery time. Someone performing nightly shows has different needs compared to someone who performs less frequently. I might need to suggest lighter exercises on performance days to avoid fatigue. Their specific goals are the next big area to cover. "What are you hoping to achieve with this program?" Are they looking to improve breath control, build stamina, enhance their stage presence with better physical conditioning, or maybe reduce physical tension that impacts their singing? Clear goals help tailor the program precisely to their needs. I also delve into their past training experiences. "Have you worked with a vocal coach or a personal trainer before?" Understanding their previous training helps me build on what they know and identify any gaps. Myths regarding strength training negatively

impacting singing are outdated. If they've had positive experiences with certain methods, I can incorporate those; if not, I'll know to avoid them. I discuss any lifestyle factors that could influence their training. "How's your nutrition? Are you getting enough rest?" These elements are crucial because poor nutrition or inadequate rest can hinder both physical and vocal progress. Singers should have different fitness goals than bodybuilders, focusing on strength, mobility, flexibility, and lean muscle mass rather than extreme muscle building. Avoiding the Vagal maneuver (grunting) during weight lifting is crucial as it can harm the vocal folds. Instead, use unvoiced consonants to control subglottic pressure. In short, by asking these detailed questions, I can create a holistic, tailored program that supports their vocal and physical health, enhances their performance, and ensures they stay injury-free. Balance training by ensuring that pushing exercises are complemented by pulling exercises to prevent muscle imbalances. Maintain flexibility by stretching muscles post-workout to avoid rigidity affecting singing

[redacted]

Practitioner: Interesting, those questions are super helpful to guide an intake process and seem to cover all of the bases. Going off of this, how do the backgrounds and training histories of vocal athletes influence the design and effectiveness of their exercise programs?
Interviewee 4: Well, um, their backgrounds play a big role. I always try to be process-focused with my students, and as you can see I like to ask a lot of leading questions even if it is outside of an intake. Singing is a set of physical coordinations and getting an understanding of the student's background is very key to the skill acquisition and coordination process. A classical singer might have developed certain breath control techniques, while a pop singer might be used to more dynamic movements. This influences the type of exercises we incorporate. For instance, a classical singer might benefit from more focused breathwork and gentle strength training, so it's all about tailoring the program to fit their unique needs. Cardiovascular health is crucial for overall wellness and can improve breath control and stamina for singers. The American Heart Association recommends 150 minutes of moderate or 75 minutes of vigorous aerobic activity per week. So, you know, with a classical singer, they're often used to standing still and focusing on precise breath control. I might ask them, "How do you feel about your current breath control during long phrases?" If they mention any issues, we'll work on exercises to enhance their diaphragm strength and lung capacity. We might do some yoga or Pilates to increase their core stability and flexibility, which are crucial for controlled breathing. For a pop

singer, who's maybe jumping around on stage, I'd ask, "Do you ever feel winded or tired during your performances?" They need to be able to move dynamically and sing powerfully without losing breath. [redacted]. Performing cardiovascular exercise after strength training can help loosen the respiratory system. Enjoyable activities that elevate heart rate should be chosen to ensure consistent engagement. Another thing is, like, how familiar they are with physical exercise. A lot of classical singers might not have extensive experience with gym routines as I am sure you know, so I'd start slow, introducing light weights and focusing on posture and alignment. We'd discuss, "How comfortable are you with lifting weights or doing bodyweight exercises?" It's all about making them feel comfortable and gradually building up their strength. For pop singers, who might already have some workout routines, I'd ask, "What kind of physical training are you currently doing?" If they're already doing cardio, we might add more resistance training to build muscle endurance. I'd make sure they're not overdoing it, though, by balancing their routines with sufficient recovery and stretching exercises. And, of course, there's always the personal preference and previous experiences. I'd be like, "What have you enjoyed or disliked about your past training?" This way, I can avoid what hasn't worked for them and focus on methods they've found beneficial or enjoyable. Tailoring the program isn't just about their vocal needs but also their physical fitness level and personal likes or dislikes. So yeah, their background and training history are really crucial. It's about understanding where they're coming from, what they're used to, and how we can build on that to support both their vocal and physical performance.

Practitioner: I see, again I like your like you said leading questions in order to guide the students or vocal athletes to understand their voice and body and the interplay between that in the vocal instrument. When you are teaching your students, especially those fresh first years you mentioned earlier, are there any particular strategies or approaches you find effective in promoting overall physical wellness while supporting vocal performance longevity?

Interviewee 4: Oh, most definitely. I always advocate a healthy and balanced lifestyle, which can be tough for some college-aged students. One effective approach is to integrate aerobic cardio with strength training, but in a way that avoids building too much tension. For instance, aerobic exercises like steady-state cardio with nasal breathing help improve lung capacity. It's all about balance and ensuring exercises support both physical and vocal health. So, yeah, I mean, it's important to find that sweet spot where cardio and strength training complement each other without causing unnecessary strain. Flexibility and mobility exercises can prevent joint rigidity

and maintain optimal singing posture. For example, steady-state cardio with nasal breathing is fantastic because it not only boosts lung capacity but also, like, keeps the whole respiratory system in check without pushing it too hard. You might ask them, "How does your breathing feel during long performances?" If they're struggling, these types of cardio exercises can really make a difference. With strength training, it's about being mindful of the movements we choose. Tempo-based split squats and heel-elevated goblet squats are super effective. They're great because they help reduce pelvic floor tension, which is crucial for singers. You know, I'd ask, "Do you feel any tightness or discomfort in your lower body after singing?" If they do, incorporating these specific exercises can help alleviate that. And, um, the side-lying movements to relax the ribcage are another key component. These movements help with the front-to-back relaxation of the ribcage, which is essential for good breath control. It's all about enhancing inhalation capacity. So, I'd check in with them, "How's your breath control when you're singing long phrases?" If they're having trouble, these relaxed movements can really open things up. Ultimately, it's about creating a balanced routine that supports both their physical and vocal health. I'd say, "Let's find what works best for your body and voice." By integrating aerobic cardio, targeted strength training, and relaxation techniques, we ensure that every aspect of their fitness routine contributes positively to their performance. So yeah, it's really a holistic approach, considering all the physical demands of singing.

Practitioner: Yes, absolutely, it seems that way. Also with the questions, it allows the students to uh really evaluate their lifestyle and vocal and physical practices instead of you trying to just preach certain aspects. I really admire your teaching strategy and your adaptability to their situations if that makes sense. Uh and what specific challenges or considerations arise when programming physical exercise for vocal athletes in different genres, like classical versus contemporary, and how can these be addressed?

Interviewee 4: Oh, definitely, genre plays a huge role in how we approach physical exercise for vocal athletes. Classical and contemporary singers have different physical demands, and their training needs to reflect that. So, for classical singers, who often focus on sustained, controlled vocal production, the physical training needs to support breath control and posture. It's about building core strength and stability without adding unnecessary tension. So, um, I'd ask them, "How do you feel during long phrases or arias? Any specific areas of tension or fatigue?" Based on their feedback, I'd integrate exercises like Pilates or yoga that emphasize core strength and flexibility. This helps them maintain a strong, upright posture, which is crucial for classical singing. We'd focus on exercises that enhance their breath control, like diaphragmatic breathing

techniques and gentle cardio to improve lung capacity. Dynamic movement and body strength training can boost on-stage endurance for singers. On the other hand, contemporary singers, like those in pop or rock genres, often need more dynamic movement and stamina. They're jumping around on stage, engaging with the audience, and their physical training should reflect that. I'd start by asking, "Do you ever feel out of breath or fatigued during performances? How's your stamina?" If they need more endurance, I'd incorporate more high-intensity interval training or circuit training. These workouts can boost their stamina and ensure they can sing powerfully while moving energetically on stage. It's also important to include exercises that improve their overall body strength, ensuring they can handle the physical demands of their performance. For classical singers, we're often working to minimize tension and enhance control. They need to be able to sustain long notes and phrases without strain, so we focus on exercises that build slow-twitch muscle fibers. These are great for endurance and control. I'd ask, "Do you feel tension in your shoulders or neck after singing?" If they do, we incorporate gentle strength training and flexibility exercises to alleviate that. For contemporary singers, we're looking at a mix of strength and quickness. They need to move around a lot, so we focus on fast-twitch muscle fibers. These help with explosive movements and stamina. I'd ask, "How do you feel after a high-energy performance? Any specific areas of fatigue?" If they're struggling, we'd add more dynamic exercises that mimic their stage movements, ensuring they're prepared for the physicality of their shows. The key is to tailor the exercise program to the specific demands of their genre while addressing any individual needs they might have. Whether it's enhancing breath control for classical singers or boosting stamina for contemporary performers, the goal is to support their vocal performance through targeted physical training. So yeah, it's about understanding the unique demands of each genre and creating a balanced, supportive training program that enhances their overall performance.

Practitioner: Oh absolutely, going further uh on with that, can you share examples of specific exercises or movement patterns you commonly incorporate into exercise programs for vocal athletes to enhance physical fitness while also supporting vocal technique and longevity?

Interviewee 4: Sure thing. So, um, some key exercises include tempo-based split squats and heel-elevated goblet squats are some I always employ even in the studio. These are great for decreasing pelvic floor tension and increasing range of motion. Keeping everything balanced and, you know, functional. Relaxed side-lying movements are fantastic too. They help improve ribcage flexibility and inhalation capacity. It's all about making sure the body is in harmony with the breath, which is super important for vocalists. For cardio, steady-state aerobic exercises

with nasal breathing are very effective. They improve lung capacity without causing too much strain. And, anaerobic threshold intervals are great too. Working for like 2-5 minutes followed by 1-2 minutes of rest helps build endurance under fatigue. We also do some, um, relaxed side-lying movements to relax the ribcage front to back, which enhances inhalation capacity. Incorporating things like airdyne bike workouts can be useful too – like 15 seconds at max effort followed by 15 seconds of rest for several rounds. Another important exercise is the deadlift, which, when done correctly, can support overall body strength and stability without putting too much strain on the vocal folds. Plus, incorporating exercises like side plank pulses helps build oblique fatigue resistance, which is crucial for maintaining posture and breath control during long performances. It's all about creating a well-rounded routine that supports both physical and vocal performance, ensuring the singer is fit and ready without risking their vocal health. Now, it's also crucial to avoid the Valsalva maneuver during these exercises. That's when you hold your breath and push, which can create too much pressure and strain on the vocal folds. Instead, it's much safer to breathe out steadily, using a consonant sound like "sss" or "fff." This way, you control the subglottic pressure and safeguard your vocal health. It's a simple but effective way to make sure the strength training is supporting, not harming, your voice.

Practitioner: After doing a lot of research and also personal experience and observation, I can see how detrimental the valsalva maneuver is. It is also really interesting to me how many exercise professionals uh and competitors and athletes really struggle with this and you know voice disorders or trauma. I know it comes with the intra abdominal pressure and trying to stabilize the core and spine, but at what cost? Another benefit to this research, and new research is out now as uh you must know, about how vocal training and that awareness can also help exercise professionals and that field address these issues. But that is a totally side conversation for another time hah. Next, How can a coach, or uh how do you, prioritize exercises or training modalities that directly contribute to vocal health and technique while also addressing broader physical fitness goals for vocal athletes?

Interviewee 4: Uh good question, So, um, when prioritizing for opera singers, we really focus on exercises that enhance breathing efficiency and muscle endurance. For example, aerobic intervals performed near VO2 max are fantastic for improving vocal capacity. They really help with those long, sustained notes that are crucial in opera. Strength training is important too, but it’s got to be done right. The aim is to boost the oxygen utilization rate of the muscles, which helps preserve vocal function under stress. You want to, you know, avoid anything that could create too much tension or strain. Exercises that promote thorax and pelvic expansion are also

essential. Gentle rib movements and side plank pulses are great for this. They help maintain flexibility and support proper breathing, which is key for vocal health. It's all about finding the right balance between strength and flexibility. Another thing to keep in mind is avoiding the Valsalva maneuver during strength training. Instead of holding your breath and pushing like I said, it's much safer to breathe out steadily using a consonant sound like "sss" or "fff." Or not even having the weight be so heavy that it gets in the way of this. This helps control subglottic pressure and protects your vocal folds. For opera singers, it's really about creating a well-rounded program that supports their unique needs. The physical demands of opera are quite specific, so we tailor the exercises to enhance performance without risking vocal health. It's a delicate balance, but with the right approach, we can achieve it.

Practitioner: That makes total sense and thank you for uh sharing those exercises. In terms of modifications and the exercises you explained, how do you adjust and modify exercise programs for vocal athletes based on their individual progress, feedback, and performance goals, especially considering the dynamic nature of their vocal training and performance demands?

Interviewee 4: Absolutely, yeah, regular assessment and adaptation are absolutely crucial in this process. I think that adaptability is a core value in my teaching, either vocal or physical, actually completely in general. You know, based on their progress and the feedback they give us, we might tweak things here and there. For example, if a performer's gearing up for a really demanding role, we might dial up the intensity and volume of their workouts. That means focusing more on high-velocity strength training and really ramping up the aerobic conditioning. On the flip side, if they're feeling fatigued or noticing any strain, we'd definitely pivot. We'd bring in more recovery sessions and mobility work to make sure they're not pushing too hard and risking injury. It's all about striking that balance, you know, making sure they're getting the right amount of challenge without burning out. So, it's a really dynamic process, one that's always evolving based on how they're feeling and what their goals are. We're constantly adjusting to ensure they're progressing safely and effectively.

Practitioner: I completely agree that is also a core value I employ in my studio. Adaptability and listening to my singers' thoughts and needs and considerations, whatever they may be about. Generally, since I know it is different with each genre and also has a lot of personal teaching preference, but how do you approach warming up and cooling down exercises for vocal athletes to support vocal technique and career longevity?

Interviewee 4: Yeah, warm-ups and cool-downs are really at the heart of it all. So, for warming up, we always kick off with a full-body scan and shake session, you know, to get those muscles nice and primed. Then we move into those ground-based breathing drills, which are super key for expanding the ribcage and pelvis—really setting that foundation. After that, we switch gears a bit and introduce those short bursts of intensity, you know, to really wake up that nervous system and get everything firing. It's all about preparing the body and mind for the work ahead before getting into a more vocal focused warm-up and putting that breath into play and coordinating the body with the voice. Now, when it comes to cooling down, we take a more relaxed approach. We bring in those side-lying movements, which are fantastic for easing tension in the ribcage—super important for maintaining that open airflow. Then, we incorporate some gentle stretching to keep those muscles supple and, you know, prevent any tightness from creeping in. And to wrap it all up, I might prescribe a bit of steady-state aerobic cardio. That really helps with recovery, you know, keeping everything in working order and making sure the airway stays clear. These routines, they're not just about the moment. They're absolutely crucial for supporting vocal technique and, you know, ensuring long-term health and performance. It's all about setting up those good habits that pay off in the long run.

Practitioner: That is super about the warm-up and cool-downs, thank you. Lastly before we run out of time, what common myths or preconceptions do you encounter or have you encountered when it comes to training vocal athletes? Or just in the field in general?

Interviewee 4: Oh, absolutely, there are definitely a lot of them. So, one big misconception floating around is that strength training can harm the voice and that tension is inherently bad. But actually, it's quite the opposite. Tension development is actually super useful in the voice, of course it cannot be kept or held upon, but vocal agility, dynamic variance, register shifting, belting technique and quick contraction are just a few techniques that also need structure and pressure as much as relaxation. Structure of the body even needs tension so strength training is a game-changer because it really amps up muscle oxygen utilization and to help structure the vocal body. This, you know, helps the voice stay strong and steady even when under pressure. Then there's this idea that singing alone can build up enough endurance for performances. But let's set the record straight strength training plays a pivotal role in reducing that fatigue that creeps up during intense performances. It's like giving your voice that extra boost to go the distance. Now, when it comes to vocal warm-ups, there's this belief that they're enough to get your voice performance-ready. But the truth is, incorporating aerobic intervals near VO2 max yeah, those are great for enhancing vocal capacity. They really amp up your lung power and

stamina, you know, making sure you can hit those high notes with ease. And let's not forget cardio. There's this myth that all cardio is bad for singers, but that's not the case at all. Steady-state aerobic exercise, especially when you're using nasal breathing, can be a total game-changer. It's all about improving your lung capacity and building that endurance is absolutely crucial for keeping your voice in top shape. So, yeah, busting these myths is all about setting the record straight and making sure vocalists understand the real benefits of incorporating strength training and aerobic exercises into their routine. It's about supporting your voice for the long haul, you know, ensuring you can perform at your absolute best.

Practitioner: Thank you, this was all so helpful and really well uh explained scientifically. I can definitely relate to a lot of those, and I think my goal with this uh project and with my vocal athletes is to not perpetuate any of them if that makes sense. I want to encourage movement and spread knowledge on how helpful this is, obviously if done right. If I could ask one last thing, I am a performer and uh so are a lot of my clients and students and I like to ask my clients and my students this and so now you. If you could give one piece of advice to someone either just starting out or someone with a voice or physical training routine already, what would that be?

Interviewee 4: Great question for sure. I think the biggest piece of advice I'd give is to listen to your body. Whether you're just starting out or you've been training for years, it's crucial to pay attention to what your body's telling you. If something feels off or if you're experiencing pain, don't push through it. Instead, take a step back, assess, and adjust your training as needed. This is especially important for vocal athletes because the voice is such a sensitive and intricate instrument. Maintaining a balance between physical and vocal training is key. And remember, progress takes time. Consistency is more important than intensity. It's better to have a steady, gradual improvement than to risk injury by pushing too hard, too fast. So, yeah, listen to your body, be patient with your progress, and stay consistent with your training.

Practitioner: This has been really insightful and I cannot wait to employ some of these tactics in the next stages of this project. Uh we are about to run out of time, but I wanted to say thank you so much for sharing your expertise and experience, it has been absolutely invaluable and a pleasure.

Interviewee 4: No problem at all, the honor has been mine. Glad to help. I have really enjoyed our conversation. I think this is a great project and I can't wait to see what you do with it. If you need any other help you are welcome to reach out and best of luck to you.

8. Expert Interview Coding Round 1

Module 6 [Code x Transcript Matrix]					
Generated from Delve (www.DelveTool.com)					
			# of snippets in this transcript	# of snippets in this transcript	# of snippets in this transcript
Order of Code in List	Nested Level	Code Name	Interview 1 (Interviewees 1 and 2)	Interview 2 (Interviewee 3)	Interview 3 (Interviewee 4)
1	>	Wider Scope			2
2	>	Vocal health			6
3	>	Exercise Science Principles		9	3
4	>	Demands		19	23
5	>	Biomechanics		7	5
6	>	Awareness	14	10	13
7	>	Progress Tracking	7	1	
8	>	Challenges	20	4	4
9	>	Intake/Assessment	13	17	18
10	>	Injury/Rehab/Imbalances/Issues	4	3	12
11	>	Advocacy	11	4	14
12	>	Improvements	4	11	53
13	>	Holistic View	20	22	33
14	>	Program Creation	39	44	51
15	>	Things to Avoid	4	4	6
16	>	Modifications	25	5	5
17	>	Advice	27	38	59
18	>	Myths	12	6	9
19	>	Exercises	3	38	55

9. Expert Interview Coding Round 1 - Quotes within Themes

Transcript	Snippet	URL	Memos	Snippet Coded By	Codes					
Interview 1 (Interviewees 1 and 2)	And I've always really been an athlete, I have seen a huge improvement, not only in my own performance, but in my self confidence, and my body awareness and all of that, when I do train, and when I am physically active.	app.delvetool.com/transcripts/202357?snippet=4088866		anna	Improvements					
Interview 1 (Interviewees 1 and 2)	So I really promote that to my students.	app.delvetool.com/transcripts/202357?snippet=4088867		anna	Advocacy					
Interview 1 (Interviewees 1 and 2)	And folks who are particularly concerned, sometimes I'll get referrals from people who are EMTs, or SLPs, who have specific concerns about vocal health and injury.	app.delvetool.com/transcripts/202357?snippet=4088895		anna	Injury/Rehab/Imbalances/Issues					
Interview 1 (Interviewees 1 and 2)	I work with folks who are rehabbing from injury, vocally.	app.delvetool.com/transcripts/202357?snippet=4088896		anna	Injury/Rehab/Imbalances/Issues					
Interview 1 (Interviewees 1 and 2)	I personally have everybody complete the VHI 10.	app.delvetool.com/transcripts/202357?snippet=4088897		anna	Intake/Assessment					
Interview 1 (Interviewees 1 and 2)	So if there are questions that like go beyond the what the scope of that, then I'll have them do the regular VHI.	app.delvetool.com/transcripts/202357?snippet=4088898		anna	Intake/Assessment					
Interview 1 (Interviewees 1 and 2)	Generally, in the first like, 10, or 15 minutes of talking to someone unless I know they're coming specifically for the purpose of, you know, injury stuff, in which case, then I will ask them to have their, their scopes set imagery,	app.delvetool.com/transcripts/202357?snippet=4088917		anna	Injury/Rehab/Imbalances/Issues	Intake/Assessment				
Interview 1 (Interviewees 1 and 2)	But the other thing I sometimes will do is just as I'm listening, as we're talking initially, I'll run through like a Gervase in my mind.	app.delvetool.com/transcripts/202357?snippet=4088918		anna	Intake/Assessment					
Interview 1 (Interviewees 1 and 2)	Get our roughness, breath, noticing strain, all of those kinds of things run down.	app.delvetool.com/transcripts/202357?snippet=4088919		anna	Intake/Assessment					
Interview 1 (Interviewees 1 and 2)	If there that ends up being a question about something that is more physiologically related, then it's a lot of education in terms of sitting and talking about, like, you know, wire, you know, what have you been told by other pe	app.delvetool.com/transcripts/202357?snippet=4088920		anna	Intake/Assessment					
Interview 1 (Interviewees 1 and 2)	What kinds of cues have you been given by other people?	app.delvetool.com/transcripts/202357?snippet=4088921		anna	Advocacy	Holistic View	Intake/Assessment			
Interview 1 (Interviewees 1 and 2)	If anything physically, what kinds of things have you worked tends to work for you and your experience?	app.delvetool.com/transcripts/202357?snippet=4088922		anna	Intake/Assessment					
Interview 1 (Interviewees 1 and 2)	Very collaborative, kind of, like intake process in that way?	app.delvetool.com/transcripts/202357?snippet=4088924		anna	Holistic View					
Interview 1 (Interviewees 1 and 2)	So just getting a baseline and having someone go through something simple, just so I can get kind of a baseline for where they're at, is kind of the biggest thing, you know, going through a park, you ask them about their life	app.delvetool.com/transcripts/202357?snippet=4088925		anna	Intake/Assessment					
Interview 1 (Interviewees 1 and 2)	I always ask about their diet, their general, like movement patterns, their habits, that kind of thing, just so I have a good baseline, and then just taking them through a simple movement assessment, just so you know, I it kind	app.delvetool.com/transcripts/202357?snippet=4088926		anna	Intake/Assessment					
Interview 1 (Interviewees 1 and 2)	Just finding out what actually is working what's not, you know, if they do have any pains, a lot of times people forget things on intake form.	app.delvetool.com/transcripts/202357?snippet=4088927		anna	Injury/Rehab/Imbalances/Issues					
Interview 1 (Interviewees 1 and 2)	So yeah, most of it happening, you know, in person, I think would be the main approach.	app.delvetool.com/transcripts/202357?snippet=4088928		anna	Advice					
Interview 1 (Interviewees 1 and 2)	So for us like with this fusion, it's same thing for Interviewee 1 and I, it's like, fusing the two of our approaches is kind of the big thing.	app.delvetool.com/transcripts/202357?snippet=4088929		anna	Holistic View					
Interview 1 (Interviewees 1 and 2)	For me, I can, you know, track reps and I can track if someone's losing weight I can track, you know, if they're increasing volume, right?	app.delvetool.com/transcripts/202357?snippet=4088931		anna	Challenges	Program Creation	Progress Tracking			
Interview 1 (Interviewees 1 and 2)	So it's a little bit easier in some ways than tracking someone's vocal progression, because you're just like listening.	app.delvetool.com/transcripts/202357?snippet=4088932		anna	Challenges					
Interview 1 (Interviewees 1 and 2)	And so that's what Interviewee 1 and I were thinking even to with the vocal exercises and something developing a more streamlines assessments is kind of the big thing.	app.delvetool.com/transcripts/202357?snippet=4088933		anna	Challenges	Holistic View	Intake/Assessment	Program Creation	Progress Tracking	
Interview 1 (Interviewees 1 and 2)	Well, the tracking will be invaluable.	app.delvetool.com/transcripts/202357?snippet=4088934		anna	Progress Tracking					
Interview 1 (Interviewees 1 and 2)	And that was one of the things that I focused on in a previous study is that, you know, without the equipment, it's really, really hard to do that unless it's just timed, like you said, for the breathing exercises.	app.delvetool.com/transcripts/202357?snippet=4088936		anna	Challenges	Progress Tracking				
Interview 1 (Interviewees 1 and 2)	But that's really, really cool that you guys are thinking about how to scientifically quantify the voice in a way that can be equatable.	app.delvetool.com/transcripts/202357?snippet=4088937		anna	Challenges	Progress Tracking				
Interview 1 (Interviewees 1 and 2)	Yeah, and something that doesn't cost a ton of money to be able to do would also be on that list of sort of limitations that we have now.	app.delvetool.com/transcripts/202357?snippet=4088938		anna	Challenges	Progress Tracking				
Interview 1 (Interviewees 1 and 2)	I will say to you, when I have time, like with a purse with an individual or with a group or whatever, I will do like objective acoustical analysis, too.	app.delvetool.com/transcripts/202357?snippet=4088939		anna	Intake/Assessment					
Interview 1 (Interviewees 1 and 2)	And all of that, so I have the software to do all of those things.	app.delvetool.com/transcripts/202357?snippet=4088940		anna	Challenges					
Interview 1 (Interviewees 1 and 2)	And allowing it to be accessible and, you know, usable, and equatable, all of those things are, I think, is where this field needs to get to, it's just that taking that next step.	app.delvetool.com/transcripts/202357?snippet=4088942		anna	Challenges	Intake/Assessment	Progress Tracking			
Interview 1 (Interviewees 1 and 2)	I would say so far, one thing that we have definitely noticed, or as, as we iterate the program, this program is specifically is that, you know, it's it's difficult, we're, you know, it's figuring out how to how to section the different	app.delvetool.com/transcripts/202357?snippet=4088943		anna	Program Creation					
Interview 1 (Interviewees 1 and 2)	So for example, you know, is it offered by physical ability and so thus it is sort of it is set up to be, you know, what kind of what kind of workout can you handle, physically?	app.delvetool.com/transcripts/202357?snippet=4088944		anna	Modifications	Program Creation				
Interview 1 (Interviewees 1 and 2)	Is it set up to be, you know, where are you at, in your vocal journey in a group and speaking in a group context, right, obviously, because, you know, initially the very first the very first one that we did, as a group workout, for e	app.delvetool.com/transcripts/202357?snippet=4088946		anna	Program Creation					
Interview 1 (Interviewees 1 and 2)	About six of them were like, I there's no way I could ever finish that.	app.delvetool.com/transcripts/202357?snippet=4088947		anna	Challenges	Modifications				
Interview 1 (Interviewees 1 and 2)	And then the folks in the middle were like, yeah, it was you know, so it was it was interesting in the sense that it figuring out you know, always how to decide you're going to section and, and calibrate each of those.	app.delvetool.com/transcripts/202357?snippet=4088948		anna	Modifications					
Interview 1 (Interviewees 1 and 2)	So that feel that people feel successful, right.	app.delvetool.com/transcripts/202357?snippet=4088949		anna	Modifications	Program Creation				
Interview 1 (Interviewees 1 and 2)	You know, when they have left Because for voice people, this is something that as you know, is very much an adjunct, like they are seeing this as it has to be such a value add in order to take an additional hour out of their w	app.delvetool.com/transcripts/202357?snippet=4088951		anna	Challenges	Modifications				
Interview 1 (Interviewees 1 and 2)	There's not going to be a voice person, they're gonna be like, I couldn't do 2% of it.	app.delvetool.com/transcripts/202357?snippet=4088952		anna	Modifications					
Interview 1 (Interviewees 1 and 2)	And, and sort of figuring out exactly how that gets planned in a group situation certainly write, you know, to section off.	app.delvetool.com/transcripts/202357?snippet=4088953		anna	Modifications					
Interview 1 (Interviewees 1 and 2)	Yeah, and even you know, finding that perfect balance for an individual is also hard, you're writing a program for another person, you don't know exactly how it feels for them, all you can go off is their perception and how the	app.delvetool.com/transcripts/202357?snippet=4088954		anna	Modifications	Program Creation				
Interview 1 (Interviewees 1 and 2)	Yeah, I would say, keeping it's more simple, I think is the best approach.	app.delvetool.com/transcripts/202357?snippet=4088955		anna	Advice	Program Creation				
Interview 1 (Interviewees 1 and 2)	Most people they're not moving around when they're singing.	app.delvetool.com/transcripts/202357?snippet=4088956		anna	Challenges	Holistic View				
Interview 1 (Interviewees 1 and 2)	So for us, we were trying to develop exercise program that was an hour long, get a workout in and also feel like you are training your voice, but it did kind of seem like it needed to be a little more simplified a little more contr	app.delvetool.com/transcripts/202357?snippet=4088957		anna	Program Creation					
Interview 1 (Interviewees 1 and 2)	So that's the big thing, like, it's, you can't have the exact same type of exercises that you would do in a normal group fitness class.	app.delvetool.com/transcripts/202357?snippet=4088958		anna	Advice	Program Creation				
Interview 1 (Interviewees 1 and 2)	Like, we started out with more classic style movements, but they kind of need to be simplified just a little bit just so people can start to build awareness around what it feels like to have like the the dance between their voice	app.delvetool.com/transcripts/202357?snippet=4088960		anna	Advice	Modifications	Program Creation			
Interview 1 (Interviewees 1 and 2)	Yeah, so you can say, like a squat, like you have somebody doing, we, in our first exercise, we had more endurance.	app.delvetool.com/transcripts/202357?snippet=4088961		anna	Exercises					
Interview 1 (Interviewees 1 and 2)	So it was, we were doing more a little bit more jumpy type things, not even someone didn't have to jump, you could just go onto your tippy toes, if you wanted to reduce impact, but just getting more of a controlled squat, yo	app.delvetool.com/transcripts/202357?snippet=4088963		anna	Exercises	Modifications				
Interview 1 (Interviewees 1 and 2)	So it's like, it's still going to be progressively overloading their capabilities.	app.delvetool.com/transcripts/202357?snippet=4088964		anna	Advice	Modifications	Program Creation			
Interview 1 (Interviewees 1 and 2)	So it's just like, slowing it down, making it a little more control a little more isometric type movements.	app.delvetool.com/transcripts/202357?snippet=4088965		anna	Modifications					
Interview 1 (Interviewees 1 and 2)	That was beneficial for us, like just moving into different type of modules for us just focusing on stuff that's a little less jumping around.	app.delvetool.com/transcripts/202357?snippet=4088966		anna	Program Creation					
Interview 1 (Interviewees 1 and 2)	Because it's not about just getting your heart rate up to you know, we don't want to go to like max heart rate.	app.delvetool.com/transcripts/202357?snippet=4088967		anna	Advice	Exercises	Program Creation	Things to Avoid		
Interview 1 (Interviewees 1 and 2)	Of course, during an exercise like this, we were staying pretty moderate.	app.delvetool.com/transcripts/202357?snippet=4088969		anna	Advice	Program Creation				
Interview 1 (Interviewees 1 and 2)	But even going lower, just because people can lose control of their voice relatively quickly, it seems.	app.delvetool.com/transcripts/202357?snippet=4088968		anna	Modifications	Program Creation	Things to Avoid			
Interview 1 (Interviewees 1 and 2)	And it's, again, a balance finding that space in which everything stays within control, but you're still finding that progressive overload aspect, you're still getting your heart rate up.	app.delvetool.com/transcripts/202357?snippet=4088970		anna	Program Creation					
Interview 1 (Interviewees 1 and 2)	But I also feel like in the United States, you either grow up an athlete, you grew up as a musician.	app.delvetool.com/transcripts/202357?snippet=4088972		anna	Awareness	Myths				
Interview 1 (Interviewees 1 and 2)	And within athletics, you learn you know, your kinesthetic awareness, how to coordinate different parts of your body where in music, you don't quite get that same education.	app.delvetool.com/transcripts/202357?snippet=4088974		anna	Advocacy	Awareness				
Interview 1 (Interviewees 1 and 2)	So it's again, finding those movement patterns that feel natural, but also support the movement that you're trying to create.	app.delvetool.com/transcripts/202357?snippet=4088975		anna	Advice	Holistic View	Program Creation			
Interview 1 (Interviewees 1 and 2)	So having that sort of learning curve is definitely something that is hard for me to teach sometimes, again, bringing it down sort of just to the basics and the baseline, instead of jumping right in.	app.delvetool.com/transcripts/202357?snippet=4088977		anna	Modifications	Program Creation				
Interview 1 (Interviewees 1 and 2)	Yes, when you get a client, a lot of times, they don't know what they're doing movement wise, which I get clients like that even just for movement type stuff, too.	app.delvetool.com/transcripts/202357?snippet=4088979		anna	Advice	Modifications	Program Creation			
Interview 1 (Interviewees 1 and 2)	For us, it was mostly people that are working on their voice, they didn't necessarily have an athletic background.	app.delvetool.com/transcripts/202357?snippet=4088980		anna	Holistic View	Program Creation				
Interview 1 (Interviewees 1 and 2)	So we're dealing with people that really don't have a baseline body awareness at all.	app.delvetool.com/transcripts/202357?snippet=4088981		anna	Advocacy	Awareness	Holistic View	Program Creation		
Interview 1 (Interviewees 1 and 2)	And they don't really know what their bodies are doing.	app.delvetool.com/transcripts/202357?snippet=4088982		anna	Holistic View					
Interview 1 (Interviewees 1 and 2)	They don't know what their posture looks like, you know, all of that stuff.	app.delvetool.com/transcripts/202357?snippet=4088983		anna	Awareness	Holistic View				
Interview 1 (Interviewees 1 and 2)	So really focusing on pushing that right with effort.	app.delvetool.com/transcripts/202357?snippet=4088984		anna	Program Creation					
Interview 1 (Interviewees 1 and 2)	So that's why like back to like the slowing things down, getting somebody to do something slowly, and then talking about what it feels like for them just constantly kind of checking in building awareness around that absolute	app.delvetool.com/transcripts/202357?snippet=4088985		anna	Modifications					
Interview 1 (Interviewees 1 and 2)	Because if you can have somebody become more aware with their bodies doing it, inevitably, you've given them a lot of right.	app.delvetool.com/transcripts/202357?snippet=4088986		anna	Awareness	Holistic View	Improvements	Modifications	Program Creation	
Interview 1 (Interviewees 1 and 2)	And again, it's that awareness, being cognizant and present in the motion of the movement.	app.delvetool.com/transcripts/202357?snippet=4088988		anna	Awareness					
Interview 1 (Interviewees 1 and 2)	Not only physically, but vocally to and being able to have the skill acquisition be a conversation rather than just, you know, do a squat?	app.delvetool.com/transcripts/202357?snippet=4088989		anna	Awareness					
Interview 1 (Interviewees 1 and 2)	I also would add to that, I think that in our case, to, you know, the people who can afford financially and timewise, to take the time to come and do something like this are often older.	app.delvetool.com/transcripts/202357?snippet=4088991		anna	Challenges					
Interview 1 (Interviewees 1 and 2)	And also, you know, gave feedback that, like, they just weren't able to do a lot of the things with their joints.	app.delvetool.com/transcripts/202357?snippet=4088992		anna	Challenges	Modifications				
Interview 1 (Interviewees 1 and 2)	And so they're, I think that there's also again, this is another thing about like, how things are sections are segmented, there's the word I was looking for that whole time, in terms of how the, you know, the population of a give	app.delvetool.com/transcripts/202357?snippet=4088993		anna	Challenges	Modifications				
Interview 1 (Interviewees 1 and 2)	thing in that regard, too, I think beyond and just again, I bring that up mostly in the context of this population of people who if they're going to invest more in something that involves their voice training beyond weekly class, le	app.delvetool.com/transcripts/202357?snippet=4088994		anna	Challenges					
Interview 1 (Interviewees 1 and 2)	And then that brings up, you know, previous injuries, how to, you know, make something accessible to any individual, like muscle imbalances, or they hate the way some exercise makes them feel, right.	app.delvetool.com/transcripts/202357?snippet=4088995		anna	Challenges	Modifications	Program Creation			
Interview 1 (Interviewees 1 and 2)	But being able to cater to all of those needs of the vocal athlete in a way that's, you know, not restrictive, but also is.	app.delvetool.com/transcripts/202357?snippet=4088996		anna	Modifications					
Interview 1 (Interviewees 1 and 2)	Accessible and adjustable while still individualized, right?	app.delvetool.com/transcripts/202357?snippet=4088997		anna	Modifications	Program Creation				
Interview 1 (Interviewees 1 and 2)	And having all the tools in, you know, a coach's toolbox to be able to pull out exercises sort of here and there to modify or adjust based on their individual needs or requests feedback or even performance goals or demands	app.delvetool.com/transcripts/202357?snippet=4088998		anna	Modifications	Program Creation				
Interview 1 (Interviewees 1 and 2)	Yeah, and I even think from the other end of the spectrum, you can go from the simplified to the progression rather than doing the really aggressive movement and then Add to that.	app.delvetool.com/transcripts/202357?snippet=4088999		anna	Modifications	Program Creation				
Interview 1 (Interviewees 1 and 2)	Just be like, this is the movement we are starting with this is your baseline, and then show like the progressions if a more athletic person wants to go down that route, what we found is most people didn't even need that mor	app.delvetool.com/transcripts/202357?snippet=4089000		anna	Modifications	Program Creation				
Interview 1 (Interviewees 1 and 2)	And, you know, on the other end of the spectrum, I've also been looking into voice disorders of exercise professionals, I mean, that's also a huge area in which this field can, you know, provide insight to the exercise, field an	app.delvetool.com/transcripts/202357?snippet=4089002		anna	Holistic View					
Interview 1 (Interviewees 1 and 2)	A lot of it is reading literature.	app.delvetool.com/transcripts/202357?snippet=4089003		anna	Advice					
Interview 1 (Interviewees 1 and 2)	And I think I think that it's it's applying, for me, it's, it's whenever it's about reading or taking a workshop or something like that, about any of this kind of thing.	app.delvetool.com/transcripts/202357?snippet=4089004		anna	Advice					
Interview 1 (Interviewees 1 and 2)	It's that applying recent frameworks to that sort of thing, as opposed to just taking because, of course, this is such a burgeoning field, which is exciting that you're working on it in such a burgeoning field that even the things	app.delvetool.com/transcripts/202357?snippet=4089005		anna	Advice					
Interview 1 (Interviewees 1 and 2)	And so I think that again, it's it's kind of like what [redacted] said, it's about being intentional, but also simpler first, and remembering that for a lot of folks, even if they have had, since you know, a lot of the folks I work with thei	app.delvetool.com/transcripts/202357?snippet=4089006		anna	Advice					
Interview 1 (Interviewees 1 and 2)	Very often those folks had did not have formal training, for example, in dance or formal training in voice even, or they came to musical theater from the acting side of the voice side of the dance side.	app.delvetool.com/transcripts/202357?snippet=4089007		anna	Advice					
Interview 1 (Interviewees 1 and 2)	And they feel weak in one or more of the others.	app.delvetool.com/transcripts/202357?snippet=4089008		anna	Advice					
Interview 1 (Interviewees 1 and 2)	And, and so I think that even when you have someone who is kind of like, seemingly kinesthetically aware from what they can do on stage, it's often a fake it till you make it way that they got there.	app.delvetool.com/transcripts/202357?snippet=4089009		anna	Awareness					
Interview 1 (Interviewees 1 and 2)	And so it's coming back and saying, Okay, well, can we also recommend other experiences like yoga class?	app.delvetool.com/transcripts/202357?snippet=4089011		anna	Advice					
Interview 1 (Interviewees 1 and 2)	I mean, when people ask me, like, if I could do one thing at all, for my voice, I always say, find a good yoga class, find a good yoga teacher, that is the number one thing you're possibly going to ever be able to do for the long	app.delvetool.com/transcripts/202357?snippet=4089012		anna	Advice	Holistic View	Program Creation			
Interview 1 (Interviewees 1 and 2)	So I think, for me, it's, you know, keeping abreast of the research and also the practice, but not taking for granted that what is out there, even if it's fairly recent, in academic terms, is still even what an author thinks, right?	app.delvetool.com/transcripts/202357?snippet=4089013		anna	Advice					
Interview 1 (Interviewees 1 and 2)	How do you train that in endurance and stamina in a way that is not just forcing it because you're onstage, but also finding the balance with that technical side that you've worked so hard for in your lessons?	app.delvetool.com/transcripts/202357?snippet=4089014		anna	Advocacy	Challenges	Holistic View			
Interview 1 (Interviewees 1 and 2)	But when I'm working with someone on performing, and it's not in an audition context, and we're moving around all the time on the trampoline on the yoga ball on that, yes, like, so it's so it's interesting, because it's a little b	app.delvetool.com/transcripts/202357?snippet=4089015		anna	Advocacy	Holistic View				
Interview 1 (Interviewees 1 and 2)	And the audition component of it, or even when I'm working with like, attorneys, you know, the the stand in place aspect of it, that then ends up becoming a situation that is almost by by professional discipline is geared tow	app.delvetool.com/transcripts/202357?snippet=4089017		anna	Advocacy					
Interview 1 (Interviewees 1 and 2)	Moving around, do you know, it's an interesting, interesting dichotomy?	app.delvetool.com/transcripts/202357?snippet=4089016		anna	Advocacy	Holistic View				
Interview 1 (Interviewees 1 and 2)	You park at the piano and you bark from there.	app.delvetool.com/transcripts/202357?snippet=4089018		anna	Challenges	Myths				
Interview 1 (Interviewees 1 and 2)	But how beneficial is that not only for my posture and my body, but also for my voice.	app.delvetool.com/transcripts/202357?snippet=4089020		anna	Challenges	Myths				
Interview 1 (Interviewees 1 and 2)	Yeah, when you think about like, progressive overload and stuff, I think, Like you almost think of movement and like getting stronger and building muscle as with strain.	app.delvetool.com/transcripts/202357?snippet=4089021		anna	Myths	Program Creation	Things to Avoid			
Interview 1 (Interviewees 1 and 2)	It's kind of like simultaneous but in the voice you like don't strain, right?	app.delvetool.com/transcripts/202357?snippet=4089023		anna	Myths	Things to Avoid				
Interview 1 (Interviewees 1 and 2)	Like, you know, it's not like you're building strength in that sense.	app.delvetool.com/transcripts/202357?snippet=4089025		anna	Myths	Program Creation				
Interview 1 (Interviewees 1 and 2)	It's kind of a lot of release.	app.delvetool.com/transcripts/202357?snippet=4089026		anna	Program Creation					
Interview 1 (Interviewees 1 and 2)	Of course you're like building strength in the diaphragm and that kind of thing, but it's like not straining.	app.delvetool.com/transcripts/202357?snippet=4089027		anna	Program Creation					
Interview 1 (Interviewees 1 and 2)	You are still trying to build some kind of muscle.	app.delvetool.com/transcripts/202357?snippet=4089028		anna	Program Creation					
Interview 1 (Interviewees 1 and 2)	Its hard to get people to be aware, like back to the body awareness thing.	app.delvetool.com/transcripts/202357?snippet=4089029		anna	Awareness					
Interview 1 (Interviewees 1 and 2)	It's just back to that, like making sure you're checking in with people like, okay, yeah, maybe you got a little bit farther without, but were you straining?	app.delvetool.com/transcripts/202357?snippet=4089030		anna	Advice	Awareness	Holistic View	Improvements	Program Creation	
Interview 1 (Interviewees 1 and 2)	So it's like constant check-ins.	app.delvetool.com/transcripts/202357?snippet=4089031		anna	Advice	Program Creation				
Interview 1 (Interviewees 1 and 2)	How am I going to stay healthy without?	app.delvetool.com/transcripts/202357?snippet=4089032		anna	Advocacy					
Interview 1 (Interviewees 1 and 2)	It's again, finding that balance that I don't think many people think about between the two.	app.delvetool.com/transcripts/202357?snippet=4089033		anna	Advocacy	Holistic View	Program Creation			
Interview 1 (Interviewees 1 and 2)	Whereas you have to find the balance between the two, to have integrity in your body and integrity in your sound.	app.delvetool.com/transcripts/202357?snippet=4089034		anna	Advice	Advocacy	Awareness	Holistic View	Improvements	Myths
Interview 1 (Interviewees 1 and 2)	When you're on stage, too, and you're nervous or something, everything changes, like you said.	app.delvetool.com/transcripts/202357?snippet=4089035		anna	Challenges					
Interview 1 (Interviewees 1 and 2)	Yeah, you have to know what it feels like to be tense, you have to know what it feels like to not be tense, and then find the middle.	app.delvetool.com/transcripts/202357?snippet=4089036		anna	Advice	Holistic View	Program Creation			
Interview 1 (Interviewees 1 and 2)	Um, and like you said, that you can't strain within your voice, but. I mean, sometimes you just, you have to be okay with knowing what your boundaries are.	app.delvetool.com/transcripts/202357?snippet=4089037		anna	Advice	Awareness				
Interview 1 (Interviewees 1 and 2)	That sort of kinesthetic awareness, you know.	app.delvetool.com/transcripts/202357?snippet=4089038		anna	Awareness					
Interview 1 (Interviewees 1 and 2)	I think for me, it's, um, you know, the constant mythos is the whole, you'll feel it here when you're doing it this correctly.	app.delvetool.com/transcripts/202357?snippet=4089039		anna	Myths					
Interview 1 (Interviewees 1 and 2)	And I think that the strides that are being made with the whole, like, mode 0, mode 1, mode 2 versus calling things imagery based.	app.delvetool.com/transcripts/202357?snippet=4089040		anna	Myths					
Interview 1 (Interviewees 1 and 2)	Um, things that have nothing to do with what's actually happening, um, are really great strides toward that, getting much more specific than saying head voice, chest voice, um, you know, just these terms that have been aro	app.delvetool.com/transcripts/202357?snippet=4089041		anna	Advice	Myths				
Interview 1 (Interviewees 1 and 2)	On a given, um, individual's part as to what's actually occurring physiologically, but also Um, as a means of, um, abating comparison, um, while so and so says they feel this.	app.delvetool.com/transcripts/202357?snippet=4089042		anna	Advice	Awareness	Myths			
Interview 1 (Interviewees 1 and 2)	Um, so getting rid of all of that sort of, um, uh, thought process while keeping, you know, imagery that works for people, but that isn't detrimental.	app.delvetool.com/transcripts/202357?snippet=4089043		anna	Advice	Myths				
Interview 1 (Interviewees 1 and 2)	And, um, you're part of a, you know, of a frontier of folks who are really moving the needle on all of this in a, in a really important way.	app.delvetool.com/transcripts/202357?snippet=4089045		anna	Advice					
Interview 2 (Interviewee 3)	Ya of course, uh I have been a movement specialist, specifically a Certified Strength and Conditioning Specialist, a Functional Range Conditioning Specialist, and Neurokinetic Therapy Practitioner and I have worked previou	app.delvetool.com/transcripts/202358?snippet=4089054		anna	Holistic View					
Interview 2 (Interviewee 3)	So I don't have voice training, like I know you can hear, but I now take voice lessons too to um really get both sides.	app.delvetool.com/transcripts/202358?snippet=4089055		anna	Holistic View					
Interview 2 (Interviewee 3)	So, when it comes to assessing vocal athletes, it's really crucial to get a comprehensive understanding of their current physical condition and even just how they normally carry uh tension or um stress in their bodies with ya	app.delvetool.com/transcripts/202358?snippet=4089056		anna	Awareness	Intake/Assessment				
Interview 2 (Interviewee 3)	You know, we start by asking about their existing exercise routines.	app.delvetool.com/transcripts/202358?snippet=4089057		anna	Intake/Assessment					
Interview 2 (Interviewee 3)	Are they hitting the gym regularly, doing cardio, or maybe something like yoga?	app.delvetool.com/transcripts/202358?snippet=4089060		anna	Intake/Assessment					
Interview 2 (Interviewee 3)	And injuries or medical conditions, that's a big one.	app.delvetool.com/transcripts/202358?snippet=4089062		anna	Injury/Rehab/Imbalances/Issues	Intake/Assessment				
Interview 2 (Interviewee 3)	We need to know if they've had any injuries in the past or if they're dealing with any ongoing medical issues.	app.delvetool.com/transcripts/202358?snippet=4089064		anna	Injury/Rehab/Imbalances/Issues	Intake/Assessment				
Interview 2 (Interviewee 3)	This could be anything from postural issues, or vocal strain to, I don't know, respiratory issues or even joint problems.	app.delvetool.com/transcripts/202358?snippet=4089065		anna	Awareness	Intake/Assessment				
Interview 2 (Interviewee 3)	It's essential to get a clear picture so we can tailor their training program to avoid aggravating any old injuries or creating new ones and then go from there creating a plan that targets compensations or imbalances too.	app.delvetool.com/transcripts/202358?snippet=4089066		anna	Holistic View	Intake/Assessment	Program Creation			
Interview 2 (Interviewee 3)	Their vocal performance schedule is another key area.	app.delvetool.com/transcripts/202358?snippet=4089067		anna	Intake/Assessment					
Interview 2 (Interviewee 3)	Knowing their schedule helps us understand the physical demands they're under.	app.delvetool.com/transcripts/202358?snippet=4089069		anna	Intake/Assessment					
Interview 2 (Interviewee 3)	This changes how I would program for them, just like I would a professional athlete on season versus their off season ya?	app.delvetool.com/transcripts/202358?snippet=4089070		anna	Advocacy	Holistic View	Intake/Assessment	Program Creation		
Interview 2 (Interviewee 3)	And then, of course, we dive into their goals.	app.delvetool.com/transcripts/202358?snippet=4089071		anna	Intake/Assessment					
Interview 2 (Interviewee 3)	Oh yeah and flexibility is also a common goal, uh especially for singers who need to move a lot on stage or who are involved in more physical performances like musical theater.	app.delvetool.com/transcripts/202358?snippet=4089072		anna	Awareness	Intake/Assessment				
Interview 2 (Interviewee 3)	For every singer a full-body scan is super important.	app.delvetool.com/transcripts/202358?snippet=4089073		anna	Exercises	Intake/Assessment				
Interview 2 (Interviewee 3)	We take a close look at their body shape and structure to notice their posture, ribcage expansion, pelvic floor, and any other bodily tension or imbalances.	app.delvetool.com/transcripts/202358?snippet=4089076		anna	Awareness	Intake/Assessment				
Interview 2 (Interviewee 3)	This scan helps us understand how their body is aligned and how they use it during performance and how when they're under stress and load they manage all the demands of the role.	app.delvetool.com/transcripts/202358?snippet=4089077		anna	Intake/Assessment					
Interview 2 (Interviewee 3)	By seeing these issues and connecting it to the history we get, we can tailor their training program to address any imbalances and improve their overall performance and health.	app.delvetool.com/transcripts/202358?snippet=4089078		anna	Holistic View	Intake/Assessment	Program Creation			
Interview 2 (Interviewee 3)	So, yeah, it's all about getting a well-rounded view of where they're starting from and what they're aiming for.	app.delvetool.com/transcripts/202358?snippet=4089079		anna	Holistic View	Intake/Assessment	Program Creation			
Interview 2 (Interviewee 3)	That way, we can create a program that's perfectly suited to their needs, helping them reach their performance goals while staying healthy and injury-free.	app.delvetool.com/transcripts/202358?snippet=4089080		anna	Program Creation					
Interview 2 (Interviewee 3)	Yes it really seems that you uh view the singer as a whole and as an athlete from the start.	app.delvetool.com/transcripts/202358?snippet=4089084		anna	Advice	Advocacy	Holistic View			
Interview 2 (Interviewee 3)	That is not how I was taught or trained for example like I was taught that my breath and vocal tract were the entirety of my instrument as if that made any sense, but that is so far from the case.	app.delvetool.com/transcripts/202358?snippet=4089085		anna	Myths					
Interview 2 (Interviewee 3)	When it comes down to it the body is a map of the individuals history, so if you think about it that way it has to be trained in a way that connects to that.	app.delvetool.com/transcripts/202358?snippet=4089086		anna	Advice	Awareness	Holistic View	Program Creation		
Interview 2 (Interviewee 3)	Classical singers usually need a lot of breath control with light to moderate abdominal contraction because their pieces often have long, sustained phrases and require a lot of, um, vocal precision.	app.delvetool.com/transcripts/202358?snippet=4089089		anna	Advice	Demands				
Interview 2 (Interviewee 3)	Going deeper on a physical and anatomical uh level they have abdominal aponeurosis to contract at a gradual rate with the ribs staying open longer.	app.delvetool.com/transcripts/202358?snippet=4089090		anna	Advice					
Interview 2 (Interviewee 3)	They can really benefit from low load high volume activities and aerobic exercises that help improve lung capacity which is great for controlled breathing.	app.delvetool.com/transcripts/202358?snippet=4089091		anna	Exercises					
Interview 2 (Interviewee 3)	On a tissue level a majority of strength training is focused on fatigue resistance of these muscles which I know you know slow twitch or aerobic muscle fibres.	app.delvetool.com/transcripts/202358?snippet=4089092		anna	Biomechanics					
Interview 2 (Interviewee 3)	Here it might be best to do aerobic cardio with random birsts of elastic anaerobic activities to have a low load tissue tolerance and extend vocal endurance to lower chances of support compensations.	app.delvetool.com/transcripts/202358?snippet=4089094		anna	Exercises					
Interview 2 (Interviewee 3)	On the flip side, musical theater performers have a whole different set of demands.	app.delvetool.com/transcripts/202358?snippet=4089097		anna	Demands					
Interview 2 (Interviewee 3)	They're often dancing and singing at the same time, which is super physically demanding.	app.delvetool.com/transcripts/202358?snippet=4089095		anna	Demands					
Interview 2 (Interviewee 3)	For them they need fast hard exhales and a stiffer and faster contraction.	app.delvetool.com/transcripts/202358?snippet=4089098		anna	Biomechanics	Demands				
Interview 2 (Interviewee 3)	Hey have shorter phrased uh repertoire and quick pressure changes.	app.delvetool.com/transcripts/202358?snippet=4089099		anna	Demands					
Interview 2 (Interviewee 3)	Not that opera doesn't and you know cross training is super important but so, you might have them doing interval training or circuit workouts that combine strength and cardio to mimic the stop-start nature of a musical perf	app.delvetool.com/transcripts/202358?snippet=4089100		anna	Exercises	Holistic View				
Interview 2 (Interviewee 3)	If a classical singer has been doing a lot of static, breath-focused exercises, we might introduce more dynamic movements to enhance their physicality without compromising their vocal technique.	app.delvetool.com/transcripts/202358?snippet=4089102		anna	Exercises	Modifications				
Interview 2 (Interviewee 3)	For musical theater folks, if they've been primarily focusing on dance, we might incorporate more targeted strength exercises to build muscle endurance and stability.	app.delvetool.com/transcripts/202358?snippet=4089103		anna	Exercises	Modifications				
Interview 2 (Interviewee 3)	It's really about understanding their past experiences and the specific demands of their genre.	app.delvetool.com/transcripts/202358?snippet=4089104		anna	Challenges	Demands	Program Creation			
Interview 2 (Interviewee 3)	You know, someone who's been trained in opera is going to have a different set of challenges and strengths compared to someone in a Broadway show.	app.delvetool.com/transcripts/202358?snippet=4089105		anna	Demands	Holistic View	Program Creation			

Interview 2 (Interviewee 3)	This historical insight helps us create a training regimen that's not just effective but also sustainable, ensuring they can perform at their best without risking injury or vocal strain.	app.delvetool.com/transcripts/202358?snippet=4089106		anna	Holistic View	Program Creation				
Interview 2 (Interviewee 3)	Yes yes absolutely, I love that you went on so many different levels with that response, from muscle fibres to program creation and the demands that each uhm singer has to meet you know.	app.delvetool.com/transcripts/202358?snippet=4089107		anna	Biomechanics					
Interview 2 (Interviewee 3)	One effective strategy is to, you know, integrate both aerobic cardio and strength training, but we have to be really mindful of not overdoing anaerobic cardio because it can, um, lead to tension in the body.	app.delvetool.com/transcripts/202358?snippet=4089109		anna	Exercises					
Interview 2 (Interviewee 3)	It's crucial to incorporate specific breathing exercises and mobility work into the regimen.	app.delvetool.com/transcripts/202358?snippet=4089110		anna	Exercises	Program Creation				
Interview 2 (Interviewee 3)	For instance, relaxed side-lying movements are great because they help to relax the ribcage and improve inhalation capacity.	app.delvetool.com/transcripts/202358?snippet=4089111		anna	Exercises					
Interview 2 (Interviewee 3)	This can be particularly beneficial for singers as it enhances their breathing efficiency in a way that is light weight bearing and then they can progress with a weighted or stacked standing posture.	app.delvetool.com/transcripts/202358?snippet=4089112		anna	Exercises	Improvements				
Interview 2 (Interviewee 3)	Incorporating regular strength training exercises, like tempo-based split squats and heel-elevated goblet squats.	app.delvetool.com/transcripts/202358?snippet=4089113		anna	Exercises					
Interview 2 (Interviewee 3)	Overall you know these exercises can decrease pelvic floor tension and increase range of motion, which is really important for maintaining a balanced and flexible body but it is also important to notice that they super helpful	app.delvetool.com/transcripts/202358?snippet=4089114		anna	Improvements					
Interview 2 (Interviewee 3)	Lower repetitions with alternating activities that allow you to keep pace that allows for nasal breathing capacity throughout work are super beneficial.	app.delvetool.com/transcripts/202358?snippet=4089115		anna	Advice	Exercises	Program Creation			
Interview 2 (Interviewee 3)	Another good practice is doing steady-state aerobic exercises with nasal breathing, which not only improves lung capacity but also ensures that you're maintaining a good balance without creating too much tension or quick	app.delvetool.com/transcripts/202358?snippet=4089117		anna	Advice	Exercises	Improvements	Program Creation		
Interview 2 (Interviewee 3)	We also focus a lot on, um, the quality of movements and ensuring they support overall wellness and vocal performance.	app.delvetool.com/transcripts/202358?snippet=4089118		anna	Advice	Program Creation				
Interview 2 (Interviewee 3)	For example, exercises that promote thoracic and pelvic expansion, like gentle rib movements and side plank pulses, are essential for maintaining vocal health.	app.delvetool.com/transcripts/202358?snippet=4089120		anna	Exercises					
Interview 2 (Interviewee 3)	It's really about finding the right balance and making sure that the exercises are functional and directly related to the demands of their performance.	app.delvetool.com/transcripts/202358?snippet=4089121		anna	Advice	Program Creation				
Interview 2 (Interviewee 3)	This holistic approach helps in supporting both their physical health and their vocal performance, ensuring they can perform at their best without risking injury or vocal strain.	app.delvetool.com/transcripts/202358?snippet=4089122		anna	Holistic View	Program Creation				
Interview 2 (Interviewee 3)	In the end training upper and lower body and cardio is to help to resist fatigue onset, especially in the chest and obviously the airway, and this will uh greatly extend vocal endurance and lower chances of vocal support com	app.delvetool.com/transcripts/202358?snippet=4089123		anna	Advice	Exercises	Improvements	Program Creation		
Interview 2 (Interviewee 3)	Yeah, each genre has its own demands as I have said already uh.	app.delvetool.com/transcripts/202358?snippet=4089125		anna	Demands					
Interview 2 (Interviewee 3)	Classical singers might face the challenge of maintaining breath control and vocal stability over long phrases, so their programs should focus on, um, aerobic conditioning and gentle strength exercises that do not compress	app.delvetool.com/transcripts/202358?snippet=4089124		anna	Demands					
Interview 2 (Interviewee 3)	They might benefit from steady-state cardio and light resistance training to build endurance without adding unnecessary tension.	app.delvetool.com/transcripts/202358?snippet=4089126		anna	Exercises					
Interview 2 (Interviewee 3)	Pop singers, on the other hand, often have more dynamic and varied performance styles, so they could benefit from mixed cardio and high-velocity strength training to build explosiveness and fatigue resistance.	app.delvetool.com/transcripts/202358?snippet=4089127		anna	Demands					
Interview 2 (Interviewee 3)	For them, it's about being able to handle quick movements and maintaining vocal power.	app.delvetool.com/transcripts/202358?snippet=4089128		anna	Exercises					
Interview 2 (Interviewee 3)	Musical theater performers need a different approach since they have to sing and dance simultaneously.	app.delvetool.com/transcripts/202358?snippet=4089130		anna	Exercises					
Interview 2 (Interviewee 3)	Integrating exercises that support both, uh, cardiovascular endurance and muscular strength is key.	app.delvetool.com/transcripts/202358?snippet=4089131		anna	Advice	Program Creation				
Interview 2 (Interviewee 3)	They need to be able to move fluidly and sustain their vocal performance, so a mix of functional training and cardio is really important for them.	app.delvetool.com/transcripts/202358?snippet=4089132		anna	Advice	Exercises	Program Creation			
Interview 2 (Interviewee 3)	So, it's all about tailoring the exercises to meet the specific demands of each genre while ensuring overall physical and vocal health.	app.delvetool.com/transcripts/202358?snippet=4089133		anna	Advice					
Interview 2 (Interviewee 3)	All of these genres uh are classified as high velocity, high duration but low load sports I like to say.	app.delvetool.com/transcripts/202358?snippet=4089134		anna	Demands					
Interview 2 (Interviewee 3)	So super high level of slow strength that we see in the deadlift or bench lifts are not important.	app.delvetool.com/transcripts/202358?snippet=4089136		anna	Advice	Demands	Program Creation			
Interview 2 (Interviewee 3)	It is better to have low or even moderate load fatigue resistance so that when the performance is demanding and long, the musicians bodies have a sort of buffer to compensations that arise and also have that you know els	app.delvetool.com/transcripts/202358?snippet=4089137		anna	Advice	Program Creation				
Interview 2 (Interviewee 3)	That I have noticed is a big challenge in programming and how many other exercise uh professionals without vocal knowledge try to program and it doesn't seem to help.	app.delvetool.com/transcripts/202358?snippet=4089138		anna	Challenges	Program Creation				
Interview 2 (Interviewee 3)	Recovery is a biggie for me too.	app.delvetool.com/transcripts/202358?snippet=4089139		anna	Advice	Advocacy	Exercise Science Pr	Holistic View	Program Creation	
Interview 2 (Interviewee 3)	I would say that a weekly break down in a program needs to have days of tension stimulation and tension reducing in order to not overwhelm the vocal practice.	app.delvetool.com/transcripts/202358?snippet=4089141		anna	Program Creation					
Interview 2 (Interviewee 3)	In my book, sorry going to put a little plug, coming out in september I mention that the first step for any performer in programming is to create space, by noticing and reducing compensations by tension and stress or stiffnes	app.delvetool.com/transcripts/202358?snippet=4089142		anna	Advice	Exercise Science Principles				
Interview 2 (Interviewee 3)	Then with that the program needs to cultivate or open said space.	app.delvetool.com/transcripts/202358?snippet=4089143		anna	Advice	Exercise Science Principles				
Interview 2 (Interviewee 3)	Then comes the fun part of challenging the space with progressive stress, in exercise science terms, progressive overload I'm sure you know uh and then we get resilience under the stress, which then you now helps in perfo	app.delvetool.com/transcripts/202358?snippet=4089144		anna	Advice	Exercise Science Pr	Program Creation			
Interview 2 (Interviewee 3)	Progressive overload, used in a smart way is the key to all of it as I'm sure you have experienced and played with.	app.delvetool.com/transcripts/202358?snippet=4089145		anna	Advice	Exercise Science Pr	Program Creation			
Interview 2 (Interviewee 3)	Well, it's all about balance and, um, ensuring the exercises are functional and supportive of their vocal needs when it comes down to it.	app.delvetool.com/transcripts/202358?snippet=4089146		anna	Demands	Holistic View	Program Creation			
Interview 2 (Interviewee 3)	For instance, we really emphasize aerobic cardio to improve lung capacity without causing excess tension that could interfere with singing.	app.delvetool.com/transcripts/202358?snippet=4089148		anna	Improvements	Program Creation				
Interview 2 (Interviewee 3)	Strength training, if done correctly, is tailored to enhance muscle endurance so that the body does not compensate during longer durations or performances and, you know with that, support proper posture and breath contr	app.delvetool.com/transcripts/202358?snippet=4089152		anna	Advice	Exercises	Improvements	Program Creation		
Interview 2 (Interviewee 3)	In general e stay away from exercises that place heavy loads on the shoulders or anything that might create unnecessary tension in the thoracic area or that could compress the ribcage, because that becomes you know cou	app.delvetool.com/transcripts/202358?snippet=4089160		anna	Advice	Modifications	Things to Avoid			
Interview 2 (Interviewee 3)	I would incorporate tempo squats or single leg movements or even heel elevated modifications.	app.delvetool.com/transcripts/202358?snippet=4089164		anna	Advice	Exercises	Program Creation			
Interview 2 (Interviewee 3)	In other words, I always like to opt for movements that enhance flexibility and coordination.	app.delvetool.com/transcripts/202358?snippet=4089167		anna	Advice	Program Creation				
Interview 2 (Interviewee 3)	This also might include things like hops, skips, box jumps and jumping sprints for cardio conditioning and explosiveness, or unilateral upperbody and lowerbody alternative lifts like I said.	app.delvetool.com/transcripts/202358?snippet=4089170		anna	Exercises					
Interview 2 (Interviewee 3)	And we also incorporate a lot of breathing exercises in different stances to keep the ribcage and pelvis flexible.	app.delvetool.com/transcripts/202358?snippet=4089174		anna	Exercises	Holistic View	Program Creation			
Interview 2 (Interviewee 3)	It's really about creating a well-rounded regimen that supports both physical health and optimal vocal performance without overloading the body with stress or tension.	app.delvetool.com/transcripts/202358?snippet=4089181		anna	Advice	Awareness	Holistic View	Program Creation		
Interview 2 (Interviewee 3)	I have heard so much about the bracing and uh valsalva maneuver and it seems pretty self explanatory with not wanting so much thoracic pressure and subglottic pressure you know, but this went really in depth to the other	app.delvetool.com/transcripts/202358?snippet=4089192		anna	Advice	Awareness	Biomechanics	Modifications	Things to Avoid	
Interview 2 (Interviewee 3)	Some go-to exercises include, um, tempo-based split squats, heel-elevated goblet squats because they really help decrease pelvic floor tension and increase range of motion.	app.delvetool.com/transcripts/202358?snippet=4089195		anna	Exercises	Improvements				
Interview 2 (Interviewee 3)	I also use a lot of single arm or leg, alternating press and push movements, like rows in different stances and overhead presses for upper body and single leg dead lifts or split squats and lunges.	app.delvetool.com/transcripts/202358?snippet=4089204		anna	Exercises					
Interview 2 (Interviewee 3)	There is a lot of range in what can be done, it is just being mindful of what stress the body is under so that it doesn't get in the way of you know vocal performance or the demands of the role.	app.delvetool.com/transcripts/202358?snippet=4089206		anna	Advice	Demands	Holistic View	Program Creation		
Interview 2 (Interviewee 3)	I uh also incorporate relaxed side-lying movements to improve rib cage flexibility and inhalation capacity like I said, which is super important for singers.	app.delvetool.com/transcripts/202358?snippet=4089210		anna	Exercises					
Interview 2 (Interviewee 3)	For cardio, we focus on steady-state aerobic exercises with nasal breathing since that can be very beneficial for lung capacity and overall stamina.	app.delvetool.com/transcripts/202358?snippet=4089211		anna	Exercises	Program Creation				
Interview 2 (Interviewee 3)	We might also throw in alatic threshold intervals, like 20 seconds of maximum work followed by 1-2 minutes of rest for a lot of sets, to improve endurance under fatigue and not become fully anaerobic.	app.delvetool.com/transcripts/202358?snippet=4089216		anna	Exercises	Program Creation				
Interview 2 (Interviewee 3)	And, um, exercises that promote full-body coordination and flexibility, like gentle yoga or pilates, can be really helpful too.	app.delvetool.com/transcripts/202358?snippet=4089217		anna	Exercises	Improvements	Program Creation			
Interview 2 (Interviewee 3)	I would say that yoga is probably the most beneficial practice for a singer.	app.delvetool.com/transcripts/202358?snippet=4089218		anna	Advice	Exercises				
Interview 2 (Interviewee 3)	It comes dow to yeah it's all about creating a balanced routine that supports their physical health and enhances their vocal performance.	app.delvetool.com/transcripts/202358?snippet=4089219		anna	Advice	Holistic View	Program Creation			
Interview 2 (Interviewee 3)	Well, it's important to, like, regularly assess and adapt, just like with any progressive training or learning adventure, uh.	app.delvetool.com/transcripts/202358?snippet=4089220		anna	Advice	Exercise Science Principles				
Interview 2 (Interviewee 3)	Based on their progress and feedback, we might adjust the intensity and volume of their workouts to better suit their current needs.	app.delvetool.com/transcripts/202358?snippet=4089221		anna	Exercise Science Principles					
Interview 2 (Interviewee 3)	For instance, if a performer is preparing for a particularly demanding role, we might increase the focus on, uh, high-velocity strength training and aerobic conditioning to build up their stamina and explosive power.	app.delvetool.com/transcripts/202358?snippet=4089222		anna	Demands	Exercises	Program Creation			
Interview 2 (Interviewee 3)	Conversely, if they're experiencing fatigue or strain, we'd incorporate more recovery and mobility work to ensure they're not overtraining and to help them bounce back quicker.	app.delvetool.com/transcripts/202358?snippet=4089223		anna	Awareness	Demands	Exercises	Modifications	Program Creation	
Interview 2 (Interviewee 3)	It's also crucial to, like, check in on their mental and emotional well-being because stress can really impact physical performance.	app.delvetool.com/transcripts/202358?snippet=4089224		anna	Advice	Advocacy	Holistic View	Injury/Rehab/Imbalances/Issues		
Interview 2 (Interviewee 3)	We might even look at their nutrition, sleep, hydration and even lifestyle habits to make sure everything is supporting their overall health.	app.delvetool.com/transcripts/202358?snippet=4089225		anna	Advice	Holistic View				
Interview 2 (Interviewee 3)	It's a dynamic process that requires constant tweaking and fine-tuning based on how they're feeling and performing.	app.delvetool.com/transcripts/202358?snippet=4089226		anna	Holistic View	Improvements	Progress Tracking			
Interview 2 (Interviewee 3)	For warming up, we always begin with total body scan and possible foam rolling to release any tension, followed by those ground-based breathing drills to really open up the ribcage and pelvis.	app.delvetool.com/transcripts/202358?snippet=4089232		anna	Exercises	Holistic View	Program Creation			
Interview 2 (Interviewee 3)	And then, we wrap it up with some short, intense activities to get that nervous system fired up and ready to go.	app.delvetool.com/transcripts/202358?snippet=4089233		anna	Exercises	Program Creation				
Interview 2 (Interviewee 3)	When it comes to cool-downs, we focus on relaxed side-lying movements to really calm down the ribcage, gentle stretching to ease any tightness, and, uh, steady-state aerobic cardio to help them recover and keep that ai	app.delvetool.com/transcripts/202358?snippet=4089235		anna	Exercises					
Interview 2 (Interviewee 3)	I would say that I am a huge proponent of pre and post vocal and physical breathing activities in order to cultivate you know the support that singing needs.	app.delvetool.com/transcripts/202358?snippet=4089236		anna	Demands	Exercises				
Interview 2 (Interviewee 3)	This can be done even with a or during a vocal warm up, it doesn't have to be to intense but the body has to be upregulated and the muscles necessary need to be turned on as I say and connected to the brain and the voc	app.delvetool.com/transcripts/202358?snippet=4089237		anna	Advice	Program Creation				
Interview 2 (Interviewee 3)	It's all about setting the stage you know for a productive session and uh making sure they leave feeling refreshed, relaxed, recovered for whatever comes next.	app.delvetool.com/transcripts/202358?snippet=4089238		anna	Advice					
Interview 2 (Interviewee 3)	One major myth to debunk is this idea that strength training is harmful to the voice.	app.delvetool.com/transcripts/202358?snippet=4089239		anna	Myths					
Interview 2 (Interviewee 3)	I would say it is uh a valid concern that it causes excess stiffness, but it is important tot understand that unfamiliar movement patterns cause excess tension or stiffness.	app.delvetool.com/transcripts/202358?snippet=4089240		anna	Challenges	Things to Avoid				
Interview 2 (Interviewee 3)	This is because the body must expend you know more resources to adapt to new movements and will manifest in more tension, soreness and nervous system fatigue.	app.delvetool.com/transcripts/202358?snippet=4089241		anna	Advice	Awareness	Biomechanics	Challenges	Myths	
Interview 2 (Interviewee 3)	That is why I am not an advocate for orange theory or body pump classes because they have a different workout each session and the body cannot progress.	app.delvetool.com/transcripts/202358?snippet=4089243		anna	Advice	Things to Avoid				
Interview 2 (Interviewee 3)	Progressive overload is key.	app.delvetool.com/transcripts/202358?snippet=4089245		anna	Exercise Science Principles					
Interview 2 (Interviewee 3)	Training uh actually, it's quite beneficial because it enhances how muscles use oxygen, which is crucial for maintaining vocal function under pressure.	app.delvetool.com/transcripts/202358?snippet=4089249		anna	Advice	Biomechanics	Demands	Program Creation		
Interview 2 (Interviewee 3)	Another misconception is that simply singing alone builds enough endurance for demanding performances.	app.delvetool.com/transcripts/202358?snippet=4089253		anna	Myths					
Interview 2 (Interviewee 3)	Strength training can really cut down on fatigue during those high-stress shows.	app.delvetool.com/transcripts/202358?snippet=4089257		anna	Advice	Exercises				
Interview 2 (Interviewee 3)	Additionally, some believe that vocal warm-ups alone are all that's needed that is just nonsense to me.	app.delvetool.com/transcripts/202358?snippet=4089259		anna	Myths					
Interview 2 (Interviewee 3)	The body needs to be upregulated and optimal breathing and bodily control and awareness do not just come from vocal focused exercises or breathing in a stacked, singing position.	app.delvetool.com/transcripts/202358?snippet=4089265		anna	Advice	Awareness	Biomechanics	Demands	Exercise Science P	Program C
Interview 2 (Interviewee 3)	But incorporating aerobic intervals near VO2 max like jumping for 2-4 minutes can really boost vocal capacity and get the body ready for work.	app.delvetool.com/transcripts/202358?snippet=4089270		anna	Exercises	Improvements				

Interview 2 (Interviewee 3)	And let's not forget like I have said before and gone into, not all cardio is bad for singers; steady-state aerobic exercises with nasal breathing are fantastic for building lung capacity and stamina over time.	app.delvetool.com/transcripts/202358?snippet=4089273		anna	Improvements	Myths				
Interview 3 (Interviewee 4)	I love investing in people and I also wanted to invest in the future of what we do as artists.	app.delvetool.com/transcripts/202359?snippet=4089421		anna	Advocacy	Holistic View	Improvements			
Interview 3 (Interviewee 4)	I have been teaching for about 14 years now at the collegiate level and it is great to able to see them come in fresh as first years and be able to guide them to make the healthiest choices for them and their craft.	app.delvetool.com/transcripts/202359?snippet=4089423		anna	Holistic View					
Interview 3 (Interviewee 4)	It started as a you know personal endeavor with my own performance and my um lifestyle that I needed to upregulate in order to keep up with all of the performances I had and all of the roles I had to portray and embody.	app.delvetool.com/transcripts/202359?snippet=4089424		anna	Advocacy	Demands				
Interview 3 (Interviewee 4)	When it comes down to it as I'm sure you know, opera, and vocal performance in general, is uh super taxing on the body and I wanted to be able to harness my body instead of experiencing a lot of fatigue.	app.delvetool.com/transcripts/202359?snippet=4089426		anna	Demands					
Interview 3 (Interviewee 4)	As a professor, pedagogue and clinician, um now I guide operatic students to use these tools to get to foster a connection with the full singing body in a healthy and sustainable way with using you know exercise science an	app.delvetool.com/transcripts/202359?snippet=4089427		anna	Advocacy	Holistic View				
Interview 3 (Interviewee 4)	I tend to do a full vocal assessment beforehand but specifically when working with vocal athletes, I always start by asking about their current vocal and physical routines, any history of injuries, and their general health during	app.delvetool.com/transcripts/202359?snippet=4089429		anna	Intake/Assessment					
Interview 3 (Interviewee 4)	It's crucial to understand their performance schedule and specific goals.	app.delvetool.com/transcripts/202359?snippet=4089430		anna	Intake/Assessment					
Interview 3 (Interviewee 4)	Also, questions about their past training experiences—both vocal and physical—are really helpful.	app.delvetool.com/transcripts/202359?snippet=4089431		anna	Intake/Assessment					
Interview 3 (Interviewee 4)	First, I like to dive into their daily routines.	app.delvetool.com/transcripts/202359?snippet=4089432		anna	Intake/Assessment					
Interview 3 (Interviewee 4)	* This helps me see if they're already incorporating some form of physical training and how it aligns with their vocal practice.	app.delvetool.com/transcripts/202359?snippet=4089434		anna	Intake/Assessment					
Interview 3 (Interviewee 4)	The integration of fitness training into the lifestyle of singers is increasingly prevalent due to industry demands for physical appearance and stage movement.	app.delvetool.com/transcripts/202359?snippet=4089435		anna	Demands	Holistic View	Program Creation			
Interview 3 (Interviewee 4)	If they're doing a lot of cardio, I might suggest adding strength training to balance it out, or vice versa.	app.delvetool.com/transcripts/202359?snippet=4089437		anna	Advice	Exercises	Holistic View			
Interview 3 (Interviewee 4)	Strength training can benefit singers by improving respiratory strength, stamina, and overall physical health.	app.delvetool.com/transcripts/202359?snippet=4089439		anna	Exercises	Holistic View	Improvements			
Interview 3 (Interviewee 4)	I focus on their injury history.	app.delvetool.com/transcripts/202359?snippet=4089440		anna	Injury/Rehab/Imbalances/Issues	Intake/Assessment				
Interview 3 (Interviewee 4)	* This is key because even a minor injury can impact their vocal performance significantly.	app.delvetool.com/transcripts/202359?snippet=4089441		anna	Injury/Rehab/Imbalances/Issues					
Interview 3 (Interviewee 4)	For instance, if someone has had a shoulder injury, it might affect their posture and, consequently, their breath support.	app.delvetool.com/transcripts/202359?snippet=4089442		anna	Advice	Injury/Rehab/Imbala	Modifications	Program Creation		
Interview 3 (Interviewee 4)	* This question is essential because some medications can dry out the vocal cords or affect energy levels, which can impact both their vocal and physical performance.	app.delvetool.com/transcripts/202359?snippet=4089444		anna	Injury/Rehab/Imbalances/Issues	Intake/Assessment				
Interview 3 (Interviewee 4)	Performance schedule is another critical aspect.	app.delvetool.com/transcripts/202359?snippet=4089445		anna	Intake/Assessment					
Interview 3 (Interviewee 4)	* I ask this to gauge their workload and recovery time.	app.delvetool.com/transcripts/202359?snippet=4089446		anna	Injury/Rehab/Imbalances/Issues	Intake/Assessment				
Interview 3 (Interviewee 4)	I might need to suggest lighter exercises on performance days to avoid fatigue.	app.delvetool.com/transcripts/202359?snippet=4089448		anna	Advice	Exercises				
Interview 3 (Interviewee 4)	Their specific goals are the next big area to cover.	app.delvetool.com/transcripts/202359?snippet=4089450		anna	Intake/Assessment					
Interview 3 (Interviewee 4)	* Are they looking to improve breath control, build stamina, enhance their stage presence with better physical conditioning, or maybe reduce physical tension that impacts their singing?	app.delvetool.com/transcripts/202359?snippet=4089451		anna	Improvements					
Interview 3 (Interviewee 4)	Clear goals help tailor the program precisely to their needs.	app.delvetool.com/transcripts/202359?snippet=4089454		anna	Advice	Intake/Assessment				
Interview 3 (Interviewee 4)	I also delve into their past training experiences.	app.delvetool.com/transcripts/202359?snippet=4089455		anna	Intake/Assessment					
Interview 3 (Interviewee 4)	* Understanding their previous training helps me build on what they know and identify any gaps.	app.delvetool.com/transcripts/202359?snippet=4089456		anna	Advice	Intake/Assessment	Program Creation			
Interview 3 (Interviewee 4)	Myths regarding strength training negatively impacting singing are outdated.	app.delvetool.com/transcripts/202359?snippet=4089458		anna	Myths					
Interview 3 (Interviewee 4)	If they've had positive experiences with certain methods, I can incorporate those; if not, I'll know to avoid them.	app.delvetool.com/transcripts/202359?snippet=4089459		anna	Advice	Advocacy	Improvements	Intake/Assessment		
Interview 3 (Interviewee 4)	I discuss any lifestyle factors that could influence their training.	app.delvetool.com/transcripts/202359?snippet=4089460		anna	Holistic View	Intake/Assessment				
Interview 3 (Interviewee 4)	* These elements are crucial because poor nutrition or inadequate rest can hinder both physical and vocal progress.	app.delvetool.com/transcripts/202359?snippet=4089461		anna	Advice	Holistic View	Intake/Assessment			
Interview 3 (Interviewee 4)	Singers should have different fitness goals than bodybuilders, focusing on strength, mobility, flexibility, and lean muscle mass rather than extreme muscle building.	app.delvetool.com/transcripts/202359?snippet=4089462		anna	Advice					
Interview 3 (Interviewee 4)	Avoiding the Vagal maneuver (grunting) during weight lifting is crucial as it can harm the vocal folds.	app.delvetool.com/transcripts/202359?snippet=4089463		anna	Advice	Injury/Rehab/Imbala	Things to Avoid			
Interview 3 (Interviewee 4)	Instead, use unvoiced consonants to control subglottic pressure.	app.delvetool.com/transcripts/202359?snippet=4089464		anna	Advice					
Interview 3 (Interviewee 4)	In short, by asking these detailed questions, I can create a holistic, tailored program that supports their vocal and physical health, enhances their performance, and ensures they stay injury-free.	app.delvetool.com/transcripts/202359?snippet=4089466		anna	Intake/Assessment	Program Creation				
Interview 3 (Interviewee 4)	Balance training by ensuring that pushing exercises are complemented by pulling exercises to prevent muscle imbalances.	app.delvetool.com/transcripts/202359?snippet=4089467		anna	Advice	Exercises	Program Creation			
Interview 3 (Interviewee 4)	Maintain flexibility by stretching muscles post-workout to avoid rigidity affecting singing technique.	app.delvetool.com/transcripts/202359?snippet=4089469		anna	Exercises	Holistic View	Improvements	Program Creation		
Interview 3 (Interviewee 4)	I always try to be process-focused with my students, and as you can see I like to ask a lot of leading questions even if it is outside of an intake.	app.delvetool.com/transcripts/202359?snippet=4089471		anna	Advice					
Interview 3 (Interviewee 4)	Singing is a set of physical coordinations and getting an understanding of the student's background is very key to the skill acquisition and coordination process.	app.delvetool.com/transcripts/202359?snippet=4089474		anna	Advice	Awareness	Holistic View	Program Creation		
Interview 3 (Interviewee 4)	A classical singer might have developed certain breath control techniques, while a pop singer might be used to more dynamic movements.	app.delvetool.com/transcripts/202359?snippet=4089475		anna	Advice	Demands	Exercises			
Interview 3 (Interviewee 4)	This influences the type of exercises we incorporate.	app.delvetool.com/transcripts/202359?snippet=4089514		anna	Exercises	Program Creation				
Interview 3 (Interviewee 4)	For instance, a classical singer might benefit from more focused breathwork and gentle strength training, so it's all about tailoring the program to fit their unique needs.	app.delvetool.com/transcripts/202359?snippet=4089515		anna	Exercises					
Interview 3 (Interviewee 4)	Cardiovascular health is crucial for overall wellness and can improve breath control and stamina for singers.	app.delvetool.com/transcripts/202359?snippet=4089516		anna	Advice	Exercises	Holistic View	Improvements	Program Creation	
Interview 3 (Interviewee 4)	The American Heart Association recommends 150 minutes of moderate or 75 minutes of vigorous aerobic activity per week.	app.delvetool.com/transcripts/202359?snippet=4089518		anna	Advice					
Interview 3 (Interviewee 4)	So, you know, with a classical singer, they're often used to standing still and focusing on precise breath control.	app.delvetool.com/transcripts/202359?snippet=4089519		anna	Myths					
Interview 3 (Interviewee 4)	* If they mention any issues, we'll work on exercises to enhance their diaphragm strength and lung capacity.	app.delvetool.com/transcripts/202359?snippet=4089520		anna	Demands	Exercises	Improvements	Program Creation		
Interview 3 (Interviewee 4)	We might do some yoga or Pilates to increase their core stability and flexibility, which are crucial for controlled breathing.	app.delvetool.com/transcripts/202359?snippet=4089521		anna	Exercises	Improvements	Program Creation			
Interview 3 (Interviewee 4)	* They need to be able to move dynamically and sing powerfully without losing breath.	app.delvetool.com/transcripts/202359?snippet=4089523		anna	Demands	Exercises				
Interview 3 (Interviewee 4)	Intense cardiovascular exercise can lead to acid reflux; singers should monitor symptoms and adjust accordingly.	app.delvetool.com/transcripts/202359?snippet=4089525		anna	Advice	Injury/Rehab/Imbalances/Issues				
Interview 3 (Interviewee 4)	Performing cardiovascular exercise after strength training can help loosen the respiratory system.	app.delvetool.com/transcripts/202359?snippet=4089527		anna	Advice	Program Creation				
Interview 3 (Interviewee 4)	Enjoyable activities that elevate heart rate should be chosen to ensure consistent engagement.	app.delvetool.com/transcripts/202359?snippet=4089529		anna	Advice	Program Creation				
Interview 3 (Interviewee 4)	Another thing is, like, how familiar they are with physical exercise.	app.delvetool.com/transcripts/202359?snippet=4089532		anna	Intake/Assessment	Program Creation				
Interview 3 (Interviewee 4)	A lot of classical singers might not have extensive experience with gym routines as I am sure you know, so I'd start slow, introducing light weights and focusing on posture and alignment.	app.delvetool.com/transcripts/202359?snippet=4089533		anna	Advice	Awareness	Program Creation			
Interview 3 (Interviewee 4)	* It's all about making them feel comfortable and gradually building up their strength.	app.delvetool.com/transcripts/202359?snippet=4089535		anna	Advice	Exercise Science Pr	Program Creation			
Interview 3 (Interviewee 4)	* If they're already doing cardio, we might add more resistance training to build muscle endurance.	app.delvetool.com/transcripts/202359?snippet=4089537		anna	Exercises	Modifications	Program Creation			
Interview 3 (Interviewee 4)	I'd make sure they're not overdoing it, though, by balancing their routines with sufficient recovery and stretching exercises.	app.delvetool.com/transcripts/202359?snippet=4089538		anna	Exercises	Holistic View	Program Creation			
Interview 3 (Interviewee 4)	And, of course, there's always the personal preference and previous experiences.	app.delvetool.com/transcripts/202359?snippet=4089542		anna	Advice					
Interview 3 (Interviewee 4)	* This way, I can avoid what hasn't worked for them and focus on methods they've found beneficial or enjoyable.	app.delvetool.com/transcripts/202359?snippet=4089543		anna	Advice					
Interview 3 (Interviewee 4)	Tailoring the program isn't just about their vocal needs but also their physical fitness level and personal likes or dislikes.	app.delvetool.com/transcripts/202359?snippet=4089545		anna	Program Creation					
Interview 3 (Interviewee 4)	It's about understanding where they're coming from, what they're used to, and how we can build on that to support both their vocal and physical performance.	app.delvetool.com/transcripts/202359?snippet=4089548		anna	Advice	Program Creation				
Interview 3 (Interviewee 4)	I always advocate a healthy and balanced lifestyle, which can be tough for some college-aged students.	app.delvetool.com/transcripts/202359?snippet=4089560		anna	Advocacy	Holistic View				
Interview 3 (Interviewee 4)	One effective approach is to integrate aerobic cardio with strength training, but in a way that avoids building too much tension.	app.delvetool.com/transcripts/202359?snippet=4089561		anna	Advocacy	Exercises	Holistic View	Program Creation	Things to Avoid	
Interview 3 (Interviewee 4)	For instance, aerobic exercises like steady-state cardio with nasal breathing help improve lung capacity.	app.delvetool.com/transcripts/202359?snippet=4089563		anna	Exercises	Improvements				
Interview 3 (Interviewee 4)	It's all about balance and ensuring exercises support both physical and vocal health.	app.delvetool.com/transcripts/202359?snippet=4089565		anna	Advice					
Interview 3 (Interviewee 4)	So, yeah, I mean, it's important to find that sweet spot where cardio and strength training complement each other without causing unnecessary strain.	app.delvetool.com/transcripts/202359?snippet=4089566		anna	Advice	Exercises	Modifications	Program Creation		
Interview 3 (Interviewee 4)	Flexibility and mobility exercises can prevent joint rigidity and maintain optimal singing posture.	app.delvetool.com/transcripts/202359?snippet=4089568		anna	Exercises	Improvements				
Interview 3 (Interviewee 4)	For example, steady-state cardio with nasal breathing is fantastic because it not only boosts lung capacity but also, like, keeps the whole respiratory system in check without pushing it too hard.	app.delvetool.com/transcripts/202359?snippet=4089569		anna	Exercises	Improvements				
Interview 3 (Interviewee 4)	With strength training, it's about being mindful of the movements we choose.	app.delvetool.com/transcripts/202359?snippet=4089571		anna	Advice	Program Creation				
Interview 3 (Interviewee 4)	Tempo-based split squats and heel-elevated goblet squats are super effective.	app.delvetool.com/transcripts/202359?snippet=4089572		anna	Exercises					
Interview 3 (Interviewee 4)	They're great because they help reduce pelvic floor tension, which is crucial for singers.	app.delvetool.com/transcripts/202359?snippet=4089573		anna	Improvements					
Interview 3 (Interviewee 4)	And, um, the side-lying movements to relax the ribcage are another key component.	app.delvetool.com/transcripts/202359?snippet=4089575		anna	Exercises	Improvements				
Interview 3 (Interviewee 4)	These movements help with the front-to-back relaxation of the ribcage, which is essential for good breath control.	app.delvetool.com/transcripts/202359?snippet=4089578		anna	Improvements					
Interview 3 (Interviewee 4)	It's all about enhancing inhalation capacity.	app.delvetool.com/transcripts/202359?snippet=4089579		anna	Improvements	Program Creation				
Interview 3 (Interviewee 4)	Ultimately, it's about creating a balanced routine that supports both their physical and vocal health.	app.delvetool.com/transcripts/202359?snippet=4089580		anna	Holistic View	Program Creation				
Interview 3 (Interviewee 4)	* By integrating aerobic cardio, targeted strength training, and relaxation techniques, we ensure that every aspect of their fitness routine contributes positively to their performance.	app.delvetool.com/transcripts/202359?snippet=4089582		anna	Exercises	Holistic View	Program Creation			
Interview 3 (Interviewee 4)	So yeah, it's really a holistic approach, considering all the physical demands of singing.	app.delvetool.com/transcripts/202359?snippet=4089583		anna	Demands	Holistic View				
Interview 3 (Interviewee 4)	I really admire your teaching strategy and your adaptability to their situations if that makes sense.	app.delvetool.com/transcripts/202359?snippet=4089591		anna	Advocacy	Awareness				
Interview 3 (Interviewee 4)	Classical and contemporary singers have different physical demands, and their training needs to reflect that.	app.delvetool.com/transcripts/202359?snippet=4089595		anna	Biomechanics	Demands	Program Creation			

Interview 3 (Interviewee 4)	So, for classical singers, who often focus on sustained, controlled vocal production, the physical training needs to support breath control and posture.	app.dovetail.com/transcripts/20220927/snippet=4865096	anna	Demands	Exercises	Improvements		
Interview 3 (Interviewee 4)	It's about building core strength and stability without adding unnecessary tension.	app.dovetail.com/transcripts/20220927/snippet=4865097	anna	Improvements				
Interview 3 (Interviewee 4)	" Based on their feedback, I'd integrate exercises like Pilates or yoga that emphasize core strength and flexibility.	app.dovetail.com/transcripts/20220927/snippet=4865098	anna	Exercises				
Interview 3 (Interviewee 4)	This helps them maintain a strong, upright posture, which is crucial for classical singing.	app.dovetail.com/transcripts/20220927/snippet=4865099	anna	Improvements				
Interview 3 (Interviewee 4)	We'd focus on exercises that enhance their breath control, like diaphragmatic breathing techniques and gentle cardio to improve lung capacity.	app.dovetail.com/transcripts/20220927/snippet=4865900	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	Dynamic movement and body strength training can boost on-stage endurance for singers.	app.dovetail.com/transcripts/20220927/snippet=4865906	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	On the other hand, contemporary singers, like those in pop or rock genres, often need more dynamic movement and stamina.	app.dovetail.com/transcripts/20220927/snippet=4865907	anna	Demands				
Interview 3 (Interviewee 4)	They're jumping around on stage, engaging with the audience, and their physical training should reflect that.	app.dovetail.com/transcripts/20220927/snippet=4865908	anna	Demands				
Interview 3 (Interviewee 4)	" If they need more endurance, I'd incorporate more high-intensity interval training or circuit training.	app.dovetail.com/transcripts/20220927/snippet=4865911	anna	Exercises	Program Creation			
Interview 3 (Interviewee 4)	These workouts can boost their stamina and ensure they can sing powerfully while moving energetically on stage.	app.dovetail.com/transcripts/20220927/snippet=4865912	anna	Improvements				
Interview 3 (Interviewee 4)	It's also important to include exercises that improve their overall body strength, ensuring they can handle the physical demands of their performance.	app.dovetail.com/transcripts/20220927/snippet=4865913	anna	Demands	Improvements			
Interview 3 (Interviewee 4)	For classical singers, we're often working to minimize tension and enhance control.	app.dovetail.com/transcripts/20220927/snippet=4865915	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	They need to be able to sustain long notes and phrases without strain, so we focus on exercises that build slow-twitch muscle fibers.	app.dovetail.com/transcripts/20220927/snippet=4865916	anna	Biomechanics	Demands	Improvements		
Interview 3 (Interviewee 4)	These are great for endurance and control.	app.dovetail.com/transcripts/20220927/snippet=4865917	anna	Improvements				
Interview 3 (Interviewee 4)	" If they do, we incorporate gentle strength training and flexibility exercises to alleviate that.	app.dovetail.com/transcripts/20220927/snippet=4865919	anna	Exercises				
Interview 3 (Interviewee 4)	For contemporary singers, we're looking at a mix of strength and quickness.	app.dovetail.com/transcripts/20220927/snippet=4865920	anna	Demands	Improvements			
Interview 3 (Interviewee 4)	They need to move around a lot, so we focus on fast-twitch muscle fibers.	app.dovetail.com/transcripts/20220927/snippet=4865921	anna	Biomechanics	Demands			
Interview 3 (Interviewee 4)	These help with explosive movements and stamina.	app.dovetail.com/transcripts/20220927/snippet=4865922	anna	Improvements				
Interview 3 (Interviewee 4)	" If they're struggling, we'd add more dynamic exercises that mimic their stage movements, ensuring they're prepared for the physicality of their shows.	app.dovetail.com/transcripts/20220927/snippet=4865924	anna	Advice	Exercises	Holistic View	Program Creation	
Interview 3 (Interviewee 4)	The key is to tailor the exercise program to the specific demands of their genre while addressing any individual needs they might have.	app.dovetail.com/transcripts/20220927/snippet=4865926	anna	Advice	Program Creation			
Interview 3 (Interviewee 4)	So yeah, it's about understanding the unique demands of each genre and creating a balanced, supportive training program that enhances their overall performance.	app.dovetail.com/transcripts/20220927/snippet=4865928	anna	Advocacy	Demands	Holistic View	Improvements	Program Creation
Interview 3 (Interviewee 4)	So, um, some key exercises include tempo-based split squats and feet-elevated goblet squats are some I always enjoy even in the studio.	app.dovetail.com/transcripts/20220927/snippet=4865932	anna	Exercises				
Interview 3 (Interviewee 4)	These are great for decreasing pelvic floor tension and increasing range of motion.	app.dovetail.com/transcripts/20220927/snippet=4865937	anna	Improvements				
Interview 3 (Interviewee 4)	Keeping everything balanced and, you know, functional.	app.dovetail.com/transcripts/20220927/snippet=4865938	anna	Advice	Program Creation			
Interview 3 (Interviewee 4)	Reload side-lying movements are fantastic too.	app.dovetail.com/transcripts/20220927/snippet=4865940	anna	Exercises				
Interview 3 (Interviewee 4)	They help improve ribcage flexibility and inhalation capacity.	app.dovetail.com/transcripts/20220927/snippet=4865941	anna	Improvements				
Interview 3 (Interviewee 4)	It's all about making sure the body is in harmony with the breath, which is super important for vocalists.	app.dovetail.com/transcripts/20220927/snippet=4865942	anna	Advice	Holistic View	Program Creation		
Interview 3 (Interviewee 4)	For cardio, steady-state aerobic exercises with nasal breathing are very effective.	app.dovetail.com/transcripts/20220927/snippet=4865943	anna	Exercises				
Interview 3 (Interviewee 4)	They improve lung capacity without causing too much strain.	app.dovetail.com/transcripts/20220927/snippet=4865944	anna	Improvements				
Interview 3 (Interviewee 4)	And, anaerobic threshold intervals are great too.	app.dovetail.com/transcripts/20220927/snippet=4865945	anna	Exercises				
Interview 3 (Interviewee 4)	Working for like 2-5 minutes followed by 1-2 minutes of rest helps build endurance under fatigue.	app.dovetail.com/transcripts/20220927/snippet=4865946	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	We also do some, um, relaxed side-lying movements to relax the ribcage front to back, which enhances inhalation capacity.	app.dovetail.com/transcripts/20220927/snippet=4865947	anna	Exercises				
Interview 3 (Interviewee 4)	Incorporating things like airdyne bike workouts can be useful too – like 15 seconds at max effort followed by 15 seconds of rest for several rounds.	app.dovetail.com/transcripts/20220927/snippet=4865948	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	Another important exercise is the deadlift, which, when done correctly, can support overall body strength and stability without putting too much strain on the vocal folds.	app.dovetail.com/transcripts/20220927/snippet=4865950	anna	Exercises	Improvements	Program Creation		
Interview 3 (Interviewee 4)	Plus, it's incorporating exercises like side plank pulses helps build oblique fatigue resistance, which is crucial for maintaining posture and breath control during long performances.	app.dovetail.com/transcripts/20220927/snippet=4865951	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	It's all about creating a well-rounded routine that supports both physical and vocal performance, ensuring the singer is fit and ready without risking their vocal health.	app.dovetail.com/transcripts/20220927/snippet=4865952	anna	Holistic View	Program Creation			
Interview 3 (Interviewee 4)	Now, it's also crucial to avoid the Valsalva maneuver during these exercises.	app.dovetail.com/transcripts/20220927/snippet=4865953	anna	Advice	Things to Avoid			
Interview 3 (Interviewee 4)	That's when you hold your breath and push, which can create too much pressure and strain on the vocal folds.	app.dovetail.com/transcripts/20220927/snippet=4865954	anna	Advice	Things to Avoid			
Interview 3 (Interviewee 4)	Instead, it's much safer to breathe out steadily, using a consonant sound like "sss" or "ff".	app.dovetail.com/transcripts/20220927/snippet=4865955	anna	Advice	Improvements			
Interview 3 (Interviewee 4)	This way, you control the subglottic pressure and safeguard your vocal health.	app.dovetail.com/transcripts/20220927/snippet=4865956	anna	Advice	Awareness	Biomechanics	Holistic View	Program Creation
Interview 3 (Interviewee 4)	It's a simple but effective way to make sure the strength training is supporting, not harming, your voice.	app.dovetail.com/transcripts/20220927/snippet=4865958	anna	Advice	Awareness	Program Creation		
Interview 3 (Interviewee 4)	Uh good question, So, um, when prioritizing for opera singers, we really focus on exercises that enhance breathing efficiency and muscle endurance.	app.dovetail.com/transcripts/20220927/snippet=4865959	anna	Demands	Exercises	Improvements		
Interview 3 (Interviewee 4)	For example, aerobic intervals performed near VO2 max are fantastic for improving vocal capacity.	app.dovetail.com/transcripts/20220927/snippet=4865969	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	They really help with those long, sustained notes that are crucial in opera.	app.dovetail.com/transcripts/20220927/snippet=4865970	anna	Demands	Improvements			
Interview 3 (Interviewee 4)	Strength training is important too, but it's got to be done right.	app.dovetail.com/transcripts/20220927/snippet=4865971	anna	Advice	Exercises	Program Creation		
Interview 3 (Interviewee 4)	The aim is to boost the oxygen utilization rate of the muscles, which helps preserve vocal function under stress.	app.dovetail.com/transcripts/20220927/snippet=4865972	anna	Exercises	Improvements	Program Creation		
Interview 3 (Interviewee 4)	You want to, you know, avoid anything that could create too much tension or strain.	app.dovetail.com/transcripts/20220927/snippet=4865973	anna	Advice	Things to Avoid			
Interview 3 (Interviewee 4)	Exercises that promote thorax and pelvis expansion are also essential.	app.dovetail.com/transcripts/20220927/snippet=4865975	anna	Demands	Exercises	Program Creation		
Interview 3 (Interviewee 4)	Gentle rib movements and side plank pulses are great for this.	app.dovetail.com/transcripts/20220927/snippet=4865977	anna	Exercises				
Interview 3 (Interviewee 4)	They help maintain flexibility and support proper breathing, which is key for vocal health.	app.dovetail.com/transcripts/20220927/snippet=4865978	anna	Improvements				
Interview 3 (Interviewee 4)	It's all about finding the right balance between strength and flexibility.	app.dovetail.com/transcripts/20220927/snippet=4865980	anna	Advice	Holistic View	Program Creation		
Interview 3 (Interviewee 4)	Another thing to keep in mind just like I said to avoiding the Valsalva maneuver during strength training.	app.dovetail.com/transcripts/20220927/snippet=4865986	anna	Advice	Injury/Rehab/Imbala	Modifications	Vocal health	
Interview 3 (Interviewee 4)	To reiterate, instead of holding your breath and pushing like I said, it's much safer to breathe out steadily using a consonant sound like "sss" or "ff".	app.dovetail.com/transcripts/20220927/snippet=4865987	anna	Advice	Holistic View	Improvements	Injury/Rehab/Imbal	Vocal health
Interview 3 (Interviewee 4)	" Or not even having the weight be so heavy that it gets in the way of this.	app.dovetail.com/transcripts/20220927/snippet=4865989	anna	Advice	Things to Avoid			
Interview 3 (Interviewee 4)	This helps control subglottic pressure and protects your vocal folds.	app.dovetail.com/transcripts/20220927/snippet=4865988	anna	Injury/Rehab/Imbalances/Issues	Vocal health			
Interview 3 (Interviewee 4)	For opera singers, it's really about creating a well-rounded program that supports their unique needs.	app.dovetail.com/transcripts/20220927/snippet=4865991	anna	Demands				
Interview 3 (Interviewee 4)	The physical demands of opera are quite specific, so we tailor the exercises to enhance performance without risking vocal health.	app.dovetail.com/transcripts/20220927/snippet=4865996	anna	Demands				
Interview 3 (Interviewee 4)	It's a delicate balance, but with the right approach, we can achieve it.	app.dovetail.com/transcripts/20220927/snippet=4865993	anna	Advice	Holistic View	Program Creation		
Interview 3 (Interviewee 4)	I think that this uh integration between fields can be beneficial for even exercise professionals or regular weightlifters to have better overall vocal health rather than ego lifting or lifting beyond their means with a belt and brac	app.dovetail.com/transcripts/20220927/snippet=4865701	anna	Advice	Advocacy	Holistic View	Improvements	Injury/Rehab/Imbal Wider Sco
Interview 3 (Interviewee 4)	Absolutely, yeah. regular assessment and adaptation are absolutely crucial in this process.	app.dovetail.com/transcripts/20220927/snippet=4865706	anna	Advice				
Interview 3 (Interviewee 4)	I think that adjustability is a core value in my teaching, either vocal or physical, actually completely in general.	app.dovetail.com/transcripts/20220927/snippet=4865702	anna	Advice	Modifications	Program Creation		
Interview 3 (Interviewee 4)	For example, if a performer's gearing up for a really demanding role, we might dial up the intensity and volume of their workouts.	app.dovetail.com/transcripts/20220927/snippet=4865709	anna	Program Creation				
Interview 3 (Interviewee 4)	That means focusing more on high-velocity strength training and really ramping up the aerobic conditioning.	app.dovetail.com/transcripts/20220927/snippet=4865710	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	We'd bring in more recovery sessions and mobility work to make sure they're not pushing too hard and risking injury.	app.dovetail.com/transcripts/20220927/snippet=4865711	anna	Exercises	Holistic View	Injury/Rehab/Imbala	Program Creation	
Interview 3 (Interviewee 4)	It's all about striking that balance, you know, making sure they're getting the right amount of challenge without burning out.	app.dovetail.com/transcripts/20220927/snippet=4865713	anna	Holistic View	Program Creation			
Interview 3 (Interviewee 4)	So, it's a really dynamic process, one that's always evolving based on how they're feeling and what their goals are.	app.dovetail.com/transcripts/20220927/snippet=4865715	anna	Advice	Challenges	Program Creation		
Interview 3 (Interviewee 4)	We're constantly adjusting to ensure they're progressing safely and effectively.	app.dovetail.com/transcripts/20220927/snippet=4865716	anna	Awareness	Holistic View	Program Creation	Vocal health	Wider Scope
Interview 3 (Interviewee 4)	So, for warming up, we always kick off with a full-body scan and stroke session, you know, to get those muscles nice and primed.	app.dovetail.com/transcripts/20220927/snippet=4865720	anna	Advice	Awareness	Exercise Science Principles		
Interview 3 (Interviewee 4)	Then we move into those ground-based breathing drills, which are super key for expanding the ribcage and pelvis – really setting that foundation.	app.dovetail.com/transcripts/20220927/snippet=4865722	anna	Exercises				
Interview 3 (Interviewee 4)	After that, we switch gears a bit and introduce those short bursts of intensity, you know, to really wake up that nervous system and get everything firing.	app.dovetail.com/transcripts/20220927/snippet=4865723	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	It's all about preparing the body and mind for the work ahead before getting into a more vocal focused warm-up and putting that breath into play and coordinating the body with the voice.	app.dovetail.com/transcripts/20220927/snippet=4865724	anna	Advice	Program Creation			
Interview 3 (Interviewee 4)	We bring in these side-lying movements, which are fantastic for easing tension in the ribcage—super important for maintaining that open airflow.	app.dovetail.com/transcripts/20220927/snippet=4865725	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	Then, we incorporate some gentle stretching to keep those muscles supple and, you know, prevent any tightness from creeping in.	app.dovetail.com/transcripts/20220927/snippet=4865726	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	And to wrap it all up, I might prescribe a bit of steady-state aerobic cardio.	app.dovetail.com/transcripts/20220927/snippet=4865728	anna	Exercises				
Interview 3 (Interviewee 4)	That really helps with recovery, you know, keeping everything in working order and making sure the airway stays clear.	app.dovetail.com/transcripts/20220927/snippet=4865729	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	They're absolutely crucial for supporting vocal technique and, you know, ensuring long-term health and performance.	app.dovetail.com/transcripts/20220927/snippet=4865731	anna	Awareness	Demands	Improvements		
Interview 3 (Interviewee 4)	So, one big misconception floating around is that strength training can harm the voice and that tension is inherently bad.	app.dovetail.com/transcripts/20220927/snippet=4865732	anna	Challenges	Myths			

Interview 3 (Interviewee 4)	Tension development is actually super useful in the voice, of course. It cannot be kept or held upon, but vocal agility, dynamic variance, register shifting, belting technique and quick contraction are just a few techniques that	app.dovetail.com/transcripts/20220927/snippet=4865733	anna	Advocacy	Challenges	Demands	Myths	Vocal health
Interview 3 (Interviewee 4)	Structure of the body even needs tension so strength training is a game-changer because it really amps up muscle oxygen utilization and to help structure the vocal body.	app.dovetail.com/transcripts/20220927/snippet=4865735	anna	Advocacy	Holistic View	Myths	Program Creation	
Interview 3 (Interviewee 4)	This, you know, helps the voice stay strong and steady even when under pressure.	app.dovetail.com/transcripts/20220927/snippet=4865736	anna	Advice	Biomechanics	Holistic View	Myths	
Interview 3 (Interviewee 4)	Then there's this one that singing alone can build up enough endurance for performances.	app.dovetail.com/transcripts/20220927/snippet=4865737	anna	Myths				
Interview 3 (Interviewee 4)	But let's set the record straight: strength training plays a pivotal role in reducing that fatigue that creeps up during intense performances.	app.dovetail.com/transcripts/20220927/snippet=4865738	anna	Advice	Advocacy	Improvements		
Interview 3 (Interviewee 4)	But the truth is, incorporating aerobic intervals near VO2 max yeah, those are great for enhancing vocal capacity.	app.dovetail.com/transcripts/20220927/snippet=4865740	anna	Exercises	Improvements			
Interview 3 (Interviewee 4)	They really amp up your lung power and stamina, you know, making sure you can hit those high notes with ease.	app.dovetail.com/transcripts/20220927/snippet=4865741	anna	Improvements				
Interview 3 (Interviewee 4)	There's this myth that all cardio is bad for singers, but that's not the case at all.	app.dovetail.com/transcripts/20220927/snippet=4865742	anna	Exercises				
Interview 3 (Interviewee 4)	Steady-state aerobic exercise, especially when you're using nasal breathing, can be a total game-changer.	app.dovetail.com/transcripts/20220927/snippet=4865744	anna	Advocacy				
Interview 3 (Interviewee 4)	It's all about improving your lung capacity and building that endurance is absolutely crucial for keeping your voice in top shape.	app.dovetail.com/transcripts/20220927/snippet=4865745	anna	Improvements				
Interview 3 (Interviewee 4)	So, yeah, busting these myths is all about setting the record straight and making sure vocalists understand the real benefits of incorporating strength training and aerobic exercises into their routine.	app.dovetail.com/transcripts/20220927/snippet=4865747	anna	Advice	Challenges	Myths		
Interview 3 (Interviewee 4)	It's about supporting your voice for the long haul, you know, ensuring you can perform at your absolute best.	app.dovetail.com/transcripts/20220927/snippet=4865748	anna	Advice	Myths			
Interview 3 (Interviewee 4)	I think the biggest piece of advice I' d give is to listen to your body.	app.dovetail.com/transcripts/20220927/snippet=4865751	anna	Advice	Awareness			
Interview 3 (Interviewee 4)	If something feels off or if you're experiencing pain, don't push through it.	app.dovetail.com/transcripts/20220927/snippet=4865753	anna	Advice	Awareness			
Interview 3 (Interviewee 4)	Instead, take a step back, assess, and adjust your training as needed.	app.dovetail.com/transcripts/20220927/snippet=4865755	anna	Advice	Awareness			
Interview 3 (Interviewee 4)	This is especially important for vocal athletes because the voice is such a sensitive and intricate instrument.	app.dovetail.com/transcripts/20220927/snippet=4865756	anna	Advice	Advocacy	Awareness	Holistic View	Program Creation Vocal heal
Interview 3 (Interviewee 4)	And remember, progress takes time.	app.dovetail.com/transcripts/20220927/snippet=4865758	anna	Advice				
Interview 3 (Interviewee 4)	Consistency is more important than intensity.	app.dovetail.com/transcripts/20220927/snippet=4865759	anna	Advice				
Interview 3 (Interviewee 4)	It's better to have a steady, gradual improvement than to risk injury by pushing too hard, too fast.	app.dovetail.com/transcripts/20220927/snippet=4865760	anna	Advice	Awareness	Exercise Science Pri	Holistic View	

10. Expert Interview Coding Round 2: Themes, Sub-Themes, and Relevant Quotes

- Advocacy for VAs as Athletes
    - Necessity of PE Programming
        - E2: “They don’t know what they’re doing movement-wise…[and don’t] necessarily have an athletic background...[so they] really don’t have a baseline body awareness at all” “They don’t know what their posture looks like…and it's very apparent.”
            - E2: Talking about what it feels like…checking in… building awareness…is the best approach. Because if you can have [a VA] become more aware with their body…you’ve given them a lot.”
            - E1: “Seemingly kinesthetically aware from what they can do on stage, it’s often a fake it till you make it the way that they got there.”
        - E1: “When you’re on stage…and you’re nervous…everything changes.”
        - E3: “Navigate different bodily and technical aspects...[via] knowledge of the body and athletics and science and biomechanics….[to] reach their full potential.”
            - “The body has to be unregulated, and the muscles necessary need to be turned on…and connected to the brain and vocal body.”
            - “Training…is quite beneficial because it enhances your muscle's use of oxygen, which is crucial for maintaining vocal function under pressure.”
        - E4: “Invest in [VAs] and…in the future of what we do [for VAcs]…and be able to guide them to make the healthiest choices for them and their craft.”
            - “Vocal performance…is…super taxing on the body and [it is necessary]…to harness [the] body instead of experiencing a lot of fatigue…These tools…foster a connection with the full singing body in a healthy and sustainable way with using…exercise science and physical exercise.”
            - “Making sure vocalists [and coaches] understand the real benefits of incorporating strength training and aerobic exercises into their routine. It's about supporting your voice for the long haul…ensuring you can perform at your absolute best.”
            - “Singing is a set of physical coordinations…[a] skill acquisition and coordination process.”
            - Singers “are often used to standing still and focusing on precise breath control” and posture.”
            - “Advocate a healthy and balanced lifestyle” with a career focus
    - Genre-Specific Demands

- E1: Triple-threat artists are rare. “They feel weak in one or more of the other [areas].”
- E1: Audition settings: “prepping in ways that do not move around a lot.”
    - Performer setting: “Moving around all the time on the trampoline on the yoga ball on that.”
- E3: “Vocal athletes with a background in classical singing…tend to have specific needs that are different from…those in musical theatre.”
    - Classical: “A lot of breath control with light to moderate abdominal contraction…they have abdominal aponeurosis to contract at a gradual rate with the ribs staying open longer.”
        - “Low load high volume activities and aerobic exercises that help improve lung capacity.”
        - “On a tissue level…focused on fatigue resistance of these muscles…slow twitch or aerobic muscle fibres.”
        - “Aerobic cardio with random bursts of elastic anaerobic…to have low load tissue tolerance and extend vocal endurance to lower chances of support compensations.”
        - “Challenge…maintaining breath control and vocal stability….focus on…aerobic conditioning and gentle strength exercises that do not compress the ribcage…steady-state cardio and light resistance training to build endurance without adding any unnecessary tension.”
    - MT: “Dancing and singing at the same time, which is super physically demanding.”
        - “Fast hard exhales and stiffer and faster contraction…quick pressure changes.”
        - “Interval training or circuit workouts that combine strength and cardio to mimic the stop-start nature”
        - “Sing and dance simultaneously…[they need[cardiovascular endurance and strength..to move fluidly and sustain…so a mix of function training and cardio.”
    - Pop: “Mixed cardio and high-velocity training to build explosiveness and fatigue resistance.”
    - “Not that opera doesn’t, and you know cross-training is super important.”
    - “It's…understanding their past experiences and the specific demands of their genre…[they] are going to have a different set of challenges and strengths compared to [other genres]...this history…helps us create…effective…[and] sustainable….training programs.”
    - “All of these genres…are classified as high velocity, high duration but low load sports…so super high level of slow strength…in the

deadlift or bench lifts are unimportant. It is better to have low or even moderate load fatigue resistance…[as a] buffer to compensations…[to protect] elasticity and recoil in…vocal support."

- E3: "How when they're under stress and load, they manage all the demands."
- E3: "Right balance…exercises are functional and directly related to the demands of…performance."
- E4: "Singers should have different fitness goals than bodybuilders, focusing on strength, mobility, flexibility and lean muscle mass rather than extreme muscle building
- E4: "Mimic their stage movement."
    - Classical:
        - "Minimize tension and enhance control…[over] long phrases without strain, so we focus on exercises that build slow-twitch muscle fibres."
    - Contemporary:
        - "Mix of strength & quickness…focus[ing] on fast-twitch muscle fibres [that] help with explosive movements and stamina."

- Myth-bust via Evidence-Based Research
    - E1: "What have you been told by other people?" "what kinds of cues have you been given…What kind of things have you felt…what kinds of things have worked [or] tend to work for you?'
    - E1: "You have to know what it feels like to be tense, you have to know what it feels like not to be tense, and then find the middle…you can't strain within your voice, but sometimes…you have to be okay with knowing what your boundaries are. That sort of kinesthetic awareness."
    - E2: Tension and strain
        - "Think of movement and…getting stronger and building muscle as with strain. It's…simultaneous [and necessary], but in the voice [we cannot have] strain…it's not like you're building strength in that sense. It's kind of a lot of release…you are still trying to build some kind of muscle. It's hard to get people to be aware, like back to body awareness…making sure [they're] checking in" with their bodies and tension
    - E1: "You'll feel it here when you're doing this correctly…Things that have nothing to do with what's actually happening…best paths forward [with physiological knowledge] not only for lack of confusion…abating comparison…getting rid of all…thought processes…that have nothing to do with what's actually happening" "move the needle."
    - E3:

- "Strength training is harmful to the voice…valid concern that it causes excess stiffness, but it is important to understand that unfamiliar movement patterns cause excess tension or stiffness. This is because the body must expend…more resources to adapt to new movements and will manifest in more tension, soreness and nervous system fatigue."
- "Training…is quite beneficial because it enhances your muscle's use of oxygen, which is crucial for maintaining vocal function under pressure."
- "Another misconception is that simply singing alone builds enough endurance for demanding performances…[or] that vocal warm-ups alone are all that's needed…the body needs to be unregulated and optimal breathing and bodily control and arenas do not just come from vocal focused exercises or breathing in a stacked, singing position."
- Not all cardio is bad for singers just has to be done in an effective manner (steady-state/non-aerobic exercises with nasal breathing/conversational pace.

- E4:
  - "Strength training can harm the voice, and that tension is inherently bad…tension development is actually super useful in the voice, of course, it cannot be kept or held upon, but vocal agility, dynamic variance, register shifting, belting technique and quick contraction are just a few techniques that need structure and pressure as much as relaxation. Structure of the body even needs tension, so strength training is a game-changer because it really amps up muscle oxygen utilisation to help structure the vocal body...[for the voice] to stay strong and steady even under pressure...and reducing fatigue."
  - Cardio is bad for singers.

- Program Creation Guidance
  - Handling Personal and Health Information
    - Intakes
      - E1: "10 or 15 min of talking…[to know their] purpose
        - Injury, scopes/imagery/records
        - Listening to build and have a relationship
        - "What have you been told by other people?" "what kinds of cues have you been given…What kind of things have you felt…what kinds of things have worked [or] tend to work for you?'
        - "Very collaborative"
      - E2:

        - "Baseline…lifestyle..diet…movement patterns,..habits…simple movement assessment"
        - "A lot of times people forget things on an intake form…they don't remember until [they]…are actually physically doing it."
    - E3:
        - "Comprehensive understanding of their current physical condition…how they normally carry..tension or…stress…compensations…existing exercise routines…injuries or medical conditions…anything from postural issues, or vocal strain…respiratory issues or even joint problems."
        - Performance schedule and goals
        - "Full body scan…look at their body shape and structure to notice their posture, ribcage expansion, pelvic floor, and any other bodily tension or imbalances…[to] understand how the body is aligned and how they use it during performance…under stress and load they manage all the demands."
        - "See these issues [from the intake] and connect [them] to the history."
        - "Body is a map of the individual's history."
    - E4:
        - Full vocal assessment with VA and physical questions instead of actual movement
        - General health (medications/injuries/routines)
        - Vocal demands (performance schedule/roles
        - Lifestyle (energy levels/workload/nutrition/hydration/rest)
        - Understanding previous training to "build on what they know and identify any gaps" or red flags
            - "If they've had positive experiences with certain methods, I can incorporate those; if not, I'll know to avoid them."
        - "Leading questions"
- Structure and Exercises
    - Structure
        - E2: "offered by physical ability", "focused on endurance", "decide how you're going to section, and calibrate" to that.
        - E2: "Keeping it more simple…most people [are] not moving around when they're singing…[or] not..mov[ing] at all.
        - E2: "progressive overload
        - E3: "Target compensation and imbalances"
            - "Just like I would a professional athlete."

        - "Lower repetitions with alternating activities"
        - "Pace that allows for nasal breathing"
        - "Right balance…exercises are functional and directly related to the demands of…performance."
        - "Training upper and lower body and cardio is to help resist fatigue onset, especially in the chest and obviously the airway, and this will…greatly extend vocal endurance and lower changes of…compensations during the stressful performance."
        - "Integrate both aerobic cardio and strength training."
        - Lower repetitions with alternating activities
        - Peace that allows for nasal breathing
        - "Tension simulation and tension reducing" programming days to "not overwhelm…vocal practice" or the body.
        - "Progressive overload is key."
    - E4:
        - Lighter exercises on performance days to avoid fatigue
        - Recovery window
        - "Pushing exercises [need to be] complemented by pulling exercises to prevent muscle imbalances."
        - "Flexibility [needs to be maintained] by stretching muscles post-workout to avoid rigidity."
        - "Mimic their stage movement."
- Exercises
    - E2: "Simplified a little more controlled movements."
    - E2: "You can't have the exact same type of exercises that you would do in a normal group fitness class…we started out with more classic style movements, but they…need[ed] to be simplified…so people can start to build awareness around what it feels like to have…the dance between their voice and movement…[while] getting out of breath."
    - E2: "Isometric movements"
    - E2: ESPs ("progressive overload"
    - E2: "Stay…pretty moderate...because people can lose control of their voice relatively quickly… it's…a balance finding that space in which everything stays within control…but you're finding that progressive overload aspect, you're still getting your heart rate up."
    - E1: "Yoga…is the number one thing you're possibly going to ever be able to do for the longevity of your voice, for the sustainability of your voice, for the quality and resonance of your voice."
    - E3:

- “Integrate both aerobic cardio and strength training...like tempo-based split squats and heel-elevated goblet squats [to] decrease pelvic floor tension and increase range of motion…[for] maintaining a balanced and flexible body.”
- “Side-lying movements…relax the ribcage and improve inhalation…enhanc[ing]…breathing efficiency…[in a] lightweight bearing [way that] can [be] progress[ed] with a weighted or stacked standing posture”
- “Steady-state aerobic exercises with nasal breathing...improves lung capacity…and good balance without creating too much tension.”
- “Quick sprints to get the body under more demand so that the body and heart rate can recover quicker, similar to performance demand
- Side planks “promote thoracic and pelvic expansion.”
- Side-lying movements…relax the ribcage and improve inhalation capacity…this is lightweight bearing, and then they can progress with a weighted or stacked standing posture.”
- Strength training exercises
    - Tempo-based/Heel elevated: Decrease pelvic floor tension and increase range of motion.
    - Single arm rows/OHP in different stances
    - Single-leg deadlifts/split squats/lunges
    - Different ranges “just be mindful of what stress the body is under so that it doesn’t get in the way of…vocal performance..demands
    - Side-lying (postural changes)
    - Unilateral and alternative lifts
- Cardio
    - Stead-state cardio with nasal breathing
    - Jumping/box jumps/hops/skips/sprints —> explosiveness
    - Alaric threshold intervals = “20 seconds of maximum work followed by 1-2 minutes of rest for a lot of sets to improve endurance under fatigue and not become fully anaerobic”
    - Aerobic intervals near VO2 max (jumping 2-4 min)
- Coordination and flexibility
    - Full body
    - Yoga/pilates/stretching

- E4:
    - Yoga/pilates/stretching -> flexibility/mobility

- Enjoyable activities that work for them
  - Cardio (aerobic with nasal breathing)
    - Anaerobic threshold intervals (opposed by other experts)
    - Aerobic intervals near VO2 max
  - Tempo based
  - Heel elevated
  - Side-lying
    - Promote oblique flexibility
    - Promote thorax and pelvic expansion
  - Integrating cardio-targeted strength and relaxation techniques
  - Diaphragmatic breathing
  - Strength training
    - Deadlifts (opposed by other experts)
    - Boost oxygen utilisation rate to help preserve function under stress
- HIIT (controversial)
- Classical: slow twitch fibres to minimise tension and enhance control
- MT: Fast twitch fibres for explosive movement and stamina
- Full body shake session
- Short bursts to wake up the nervous system and prep the body and mind for work ahead -> coordinating the body with the voice
- “Gentle stretching [cool down] to keep the muscles supple and…prevent any tightness.”

- What to Include and Avoid
  - INCLUDE
    - E2: modifications “isometric movements.”
      - “Jumpy...tippy toes”, “reduce impact”, “controlled squat”
    - E2: “progressive overloading their capabilities…[and] endurance.”
    - E3: “Integrate both aerobic cardio and strength training…breathing exercises and mobility.”
    - E3: “Quality of movement”
      - Recovery
      - “Balance…[to] ensure the exercises are functional and supportive of their vocal needs.”
      - “Strength training…enhance[s] muscle endurance so…the body does not compensate…[and] support[s] proper posture and breath control
      - Warm-up
        - “Total body scan”

                - Foam roll
                - Ground-based breathing drills
                - Short, intense activities to get that nervous system fired up
            - Cool down
                - Side-lying movements to call down the ribcage
                - Gentle stretching
                - Steady-state aerobic cardio
            - Pre and post-vocal and physical breathing activities to cultivate the support for singing
        - E4:
            - Regular assessment and adaptation
    - AVOID
        - E2: “Don’t want to go to max heart rate.”
        - E3: “Anaerobic cardio…it can…lead to tension in the body.”
        - E3: “Do not compress the ribcage.”
            - Slow/ego lifts —> too long of ground time and are less elastic
            - “Avoid heavy loads on the shoulders.”
        - E4: Avoiding the “vagal manoeuvre (grunting) [also called the Valsalva manoeuvre or bracing] is crucial as it can harm the vocal folds” with too much intra-abdominal pressure and forced closure
- General Advice
    - E1: “Collaborative”
    - E2: your programming should make “people feel successful.”
    - E1: “For voice people, this is something…[that] is very much an adjunct…it has to be such a value add in order to take an additional hour…to do something like this.”
    - E2: “Slowing it down, making it a little more controlled.”
        - E2: “Go from the simplified to the progression rather than doing the really aggressive movement… it's almost better to do that…starting with…baseline, and then show…the progressions if a more athletic person wants to go down that route….because most people couldn’t sustain their voice, with hardly any movement.”
    - E1: notice the “context of [the] population” (finance/age/ability/time) for it to be accessible and effective and right for their bodies
        - “Balancing point with [the]…demographic.”
    - E1: “Reading literature…or taking workshops…applying recent frameworks…this is such a burgeoning field…being intentional, but also simpler first.”
    - E1: “Keeping abreast of the research and also the practice!”
    - E3: “View the singer as a whole and as an athlete from the start.”

        - E3: “Everything…in moderation.”
        - E3: “Quality of movement”
        - E3: “It's not about the weight.”
        - E3: “Assess and adapt…based on their progress and feedback…adjust the intensity and volume…to build up their stamina and…power…[or] ensure they’re not overtraining.”
        - E3: “Check in on their mental and emotional well-being.”
            - RECOVERY and lifestyle habits
            - This “is a dynamic process that requires constant tweaking and fine-tuning based on how they’re feeling and performing.”
        - E4: “Clear goals help tailor the program precisely to their needs.”
            - To avoid the Valsalva manoeuvre, “use unvoiced consonants to control subglottic pressure.”
            - “Process-focused”
            - Regular assessment and adaptation. Adaptability is a core value
                - This is a dynamic process
            - “Listen to your body...pay attention to what your body’s telling you. If something feels off or if you’re experiencing pain, don’t push through it. Instead…step back, assess, and adjust…the voice is such a sensitive and intricate instrument.”
            - “Progress takes time…Consistency is more important than intensity…be patient with your progress.”
        - All: Prioritize recovery (mobility work/rest -> balance the “amount of challenge without burning out.”
- Unclear information
    - E2: Tracking “I can track reps, and I can track if someone is losing weight, I can track…if they’re increasing volume….so it's a little bit easier in some ways than tracking someone’s vocal progression.”
    - HIIT/circuit training
    - Anaerobic threshold training (E4 for it, E2/3 against it)
    - Deadlift (E2 against it, E4 for it with good form)
- Broader Scope
    - Tracking
        - E2: “Developing…more streamline assessments….tracking will be invaluable...[to]scientifically quantify the voice in a way that would be equitable.”
        - E1: “And…doesn’t cost a ton of money…[one of the] limitations that we have now...accessible…usable and equitable.”
        - E4: Inspire VAs and the future of the field

11. VA Pre-Survey Email

Dear Vocal Athlete,

I hope this message finds you well. As we prepare for the upcoming intake survey, I wanted to reach out to share some important information and reassure you about the care and ethical considerations that are central to this process.

Your well-being is my top priority. This survey is designed to gather vital information to ensure that our training programs are perfectly suited to your individual needs. While I am confident in your eligibility, given our ongoing work together, it's crucial to maintain the highest standards of safety and ethics.

Please be assured that if any of your responses indicate potential health concerns or red flags, I will personally follow up with you. In such cases, you may be referred to a general practitioner or voice specialist for further evaluation. This precaution is taken to ensure your safety and health are never compromised.

I deeply value the trust you place in me as your practitioner, and I am committed to supporting you not just as an athlete but as a whole person. Your safety, health, and overall well-being are of utmost importance.

If you have any questions or concerns about the survey or the research process, please do not hesitate to reach out. I am here to support you every step of the way. The intake survey is attached, and once it is completed and reviewed we can continue.

Thank you for your cooperation and dedication to this project.

Speak soon,

Anna Holden
Practitioner and Student with the Voice Study Centre
anna.holden20@gmail.com
+1(630)731-7562

12. Survey Results: Intake (S1)

S1 VA 1

Q1

Have you ever been diagnosed with any physical, vocal or respiratory issue, injury or illness? If yes, please describe.

Asthma, but it is managed and rarely causes issues outside of allergy season

Q2

Do you feel pain in your chest, during your daily activities of living or when you do physical activity? Or has your doctor ever said that you have a heart condition or high blood pressure? If yes, please explain.

No

Q3

Are you currently taking prescribed medications for a chronic medical condition? If yes, please explain.

None

Q4

How long have you been involved in vocal performance and what genre(s) do you primarily perform?

Musical theatre and CCM for 15 years

Q5

How often do you engage in physical exercise currently?

3-4 workouts per week (circuits/hiit, walking/jogging and workout/dance classes)

Q6

Do you experience any regular physical discomfort or injuries related to physical exercise or your vocal practice? If so, please describe. Or, do you currently have (or have had within the past 12 months) a bone, joint, or soft tissue problem or surgery that could be worse by becoming more physically active?

No, but some knee instability from previous injuries (more than a year ago)

Q7

How would you rate your current vocal health on a scale of 1 to 10?

9

Q8

How would you rate your current physical health and fitness on a scale of 1 to 10?

7

Q9

Has your doctor ever said that you should only do medically supervised physical activity?

No

Q10

What do you hope to achieve by incorporating a specialized physical exercise regimen into your routine? Are there specific areas of your physical or vocal performance you wish to improve?

Improved endurance (especially when dancing) while at 100% vocal and physical effort. I want something that I can keep up with after the study too - maintainable and progressive

S1 VA 1 Coded

Q1

Have you ever been diagnosed with any physical, vocal or respiratory issue, injury or illness? If yes, please describe.

Asthma, but it is managed and rarely causes issues outside of allergy season

Q2

Do you feel pain in your chest, during your daily activities of living or when you do physical activity? Or has your doctor ever said that you have a heart condition or high blood pressure? If yes, please explain.

No

Q3

Are you currently taking prescribed medications for a chronic medical condition? If yes, please explain.

None

Q4

How long have you been involved in vocal performance and what genre(s) do you primarily perform?

Musical theatre and CCM for 15 years

Q5

How often do you engage in physical exercise currently?

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9

Q8

How would you rate your current physical health and fitness on a scale of 1 to 10?

7

Q9

Has your doctor ever said that you should only do medically supervised physical activity?

No

Q10

What do you hope to achieve by incorporating a specialized physical exercise regimen into your routine? Are there specific areas of your physical or vocal performance you wish to improve?

Improved endurance (especially when dancing) while at 100% vocal and physical effort. I want something that I can keep up with after the study too - maintainable and progressive

S1 VA 2

Q1

Have you ever been diagnosed with any physical, vocal or respiratory issue, injury or illness? If yes, please describe.

None of the above

Q2

Do you feel pain in your chest, during your daily activities of living or when you do physical activity? Or has your doctor ever said that you have a heart condition or high blood pressure? If yes, please explain.

No and no

Q3

Are you currently taking prescribed medications for a chronic medical condition? If yes, please explain.

No

Q4

How long have you been involved in vocal performance and what genre(s) do you primarily perform?

Almost 10 years in total (semi on/off), but 5 years now professionally

Q5

How often do you engage in physical exercise currently?

Ideally 4 or 5 times per week when I am consistent and motivated

Q6

Do you experience any regular physical discomfort or injuries related to physical exercise or your vocal practice? If so, please describe. Or, do you currently have (or have had within the past 12 months) a bone, joint, or soft tissue problem or surgery that could be worse by becoming more physically active?

None and N/A

Q7

How would you rate your current vocal health on a scale of 1 to 10?

9

Q8

How would you rate your current physical health and fitness on a scale of 1 to 10?

8

Q9

Has your doctor ever said that you should only do medically supervised physical activity?

No

Q10

What do you hope to achieve by incorporating a specialized physical exercise regimen into your routine? Are there specific areas of your physical or vocal performance you wish to improve?

I hope to enhance my overall stamina and breath control, improve my posture and core strength, and ensure that my body remains flexible and agile to support my vocal performances. Specifically, I aim to reduce physical tension that may impact my vocal quality and extend my endurance during long performances.

S1 VA 2 Coded

Q1

Have you ever been diagnosed with any physical, vocal or respiratory issue, injury or illness? If yes, please describe.

None of the above

Q2

Do you feel pain in your chest, during your daily activities of living or when you do physical activity? Or has your doctor ever said that you have a heart condition or high blood pressure? If yes, please explain.

No and no

Q3

Are you currently taking prescribed medications for a chronic medical condition? If yes, please explain.

No

Q4

How long have you been involved in vocal performance and what genre(s) do you primarily perform?

Almost 10 years in total (semi on/off), but 5 years now professionally

Q5

How often do you engage in physical exercise currently?

Ideally 4 or 5 times per week when I am consistent and motivated

Q6

Do you experience any regular physical discomfort or injuries related to physical exercise or your vocal practice? If so, please describe. Or, do you currently have (or have had within the past 12 months) a bone, joint, or soft tissue problem or surgery that could be worse by becoming more physically active?

None and N/A

Q7

How would you rate your current vocal health on a scale of 1 to 10?

9

Q8

How would you rate your current physical health and fitness on a scale of 1 to 10?

8

Q9

Has your doctor ever said that you should only do medically supervised physical activity?

No

Q10

What do you hope to achieve by incorporating a specialized physical exercise regimen into your routine? Are there specific areas of your physical or vocal performance you wish to improve?

I hope to enhance my overall stamina and breath control, improve my posture and core strength, and ensure that my body remains flexible and agile to support my vocal performances. Specifically, I aim to reduce physical tension that may impact my vocal quality and extend my endurance during long performances.

S1 VA 3

Q1

Have you ever been diagnosed with any physical, vocal or respiratory issue, injury or illness? If yes, please describe.

No. I do have seasonal allergies but those do not affect me now.

Q2

Do you feel pain in your chest, during your daily activities of living or when you do physical activity? Or has your doctor ever said that you have a heart condition or high blood pressure? If yes, please explain.

No.

Q3

Are you currently taking prescribed medications for a chronic medical condition? If yes, please explain.

No.

Q4

How long have you been involved in vocal performance and what genre(s) do you primarily perform?

I am classically trained in opera for 6 years, but I am branching out to more genres like musical theatre, jazz and some pop/ccm since the pandemic

Q5

How often do you engage in physical exercise currently?

I used to run a lot and workout in the gym occasionally, but I have fallen off of exercise recently. I want to get back in a routine.

Q6

Do you experience any regular physical discomfort or injuries related to physical exercise or your vocal practice? If so, please describe. Or, do you currently have (or have had within the past 12 months) a bone, joint, or soft tissue problem or surgery that could be worse by becoming more physically active?

No.

Q7

How would you rate your current vocal health on a scale of 1 to 10?

8

Q8

How would you rate your current physical health and fitness on a scale of 1 to 10?

7

Q9

Has your doctor ever said that you should only do medically supervised physical activity?

No

Q10

What do you hope to achieve by incorporating a specialized physical exercise regimen into your routine? Are there specific areas of your physical or vocal performance you wish to improve?

I want to to up my game in vocal performances and my stage/audition confidence. I am looking to build stamina, improve posture for better breathing - especially into my legs/deeper, and strengthen my core. It's all about leveling up my overall performance, both physically and vocally

S1 VA 3 Coded

Q1

Have you ever been diagnosed with any physical, vocal or respiratory issue, injury or illness? If yes, please describe.

No. I do have seasonal allergies but those do not affect me now.

Q2

Do you feel pain in your chest, during your daily activities of living or when you do physical activity? Or has your doctor ever said that you have a heart condition or high blood pressure? If yes, please explain.

No.

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How long have you been involved in vocal performance and what genre(s) do you primarily perform?

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Q6

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Q7

How would you rate your current vocal health on a scale of 1 to 10?

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Q9

Has your doctor ever said that you should only do medically supervised physical activity?

No

Q10

What do you hope to achieve by incorporating a specialized physical exercise regimen into your routine? Are there specific areas of your physical or vocal performance you wish to improve?

I want to to up my game in vocal performances and my stage/audition confidence. I am looking to build stamina, improve posture for better breathing - especially into my legs/deeper, and strengthen my core. It's all about leveling up my overall performance, both physically and vocally

13. Survey Results: Mid-PER (S2)

S2 VA 1

Q1

How successfully have you been able to integrate the prescribed exercises into your routine?

Exactly as prescribed

Q2

Which exercises do you find most beneficial, and why?

I actually liked the sprints the most. Reminded me of a HIIT workout that I was able to sustain my breath and form with. This also with the dynamic breathing seem to really help keep me open yet activated for work instead of tensing or losing my posture to compensate for being winded.

Q3

Have you encountered any difficulties or challenges in performing the exercises? If so, please describe.

The first week I was not super great with stability during the single leg exercises, but after the form cues you gave me I didn't have any other trouble and they felt much more grounded and engaged week 2.

Q4

Have you noticed any changes in your overall physical fitness since starting the program? Please explain.

I have been able to progress quickly on the sprints (up to 15sec instead of 8), I think this has to do with the pre breathing and making sure that I am not winded/out of breath between sprints. Also the stability mentioned above is a change I noticed. No change in the upper body exercises, simply because I am not or have not been super versed with those.

Q5

Have you experienced any improvements in your vocal performance or vocal health? Please describe.

I really am enjoying the higher demand versus lower demand vocal days you prescribed while following the regimen and my vocal routine. I am noticing a lot more freedom in my chest/mix and also more flexibility with belting. I have not noticed a change in sensation or fatigue.

Q6

Do you feel the exercises are tailored to your specific needs as a vocal athlete?

Yes

Q7

What adjustments or modifications, if any, have you made to the exercise regimen?

Other than the form cues you mentioned for the lower body stability exercises to ground my feet/think about tripod points on my foot, I have tried to be very exact to the exercise routine and suggestions. Week 1 I did mostly body weight to ease into it and week 2 I added bands and light weights. I want to continue to progress. I also really enjoy not being super exhausted after a workout. I know I am engaging the correct muscles and am working, but I am not completely worn out at the end. This is not something I am used to, but helps me balance my life and practice too.

S2 VA 1 Coded

Q1

How successfully have you been able to integrate the prescribed exercises into your routine?

Exactly as prescribed

Q2

Which exercises do you find most beneficial, and why?

I actually liked the sprints the most. Reminded me of a HIIT workout that I was able to sustain my breath and form with. This also with the dynamic breathing seem to really help keep me open yet activated for work instead of tensing or losing my posture to compensate for being winded.

Q3

Have you encountered any difficulties or challenges in performing the exercises? If so, please describe.

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Have you noticed any changes in your overall physical fitness since starting the program? Please explain.

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Q5

Have you experienced any improvements in your vocal performance or vocal health? Please describe.

I really am enjoying the higher demand versus lower demand vocal days you prescribed while following the regimen and my vocal routine. I am noticing a lot more freedom in my chest/mix and also more flexibility with belting. I have not noticed a change in sensation or fatigue.

Q6

Do you feel the exercises are tailored to your specific needs as a vocal athlete?

Yes

Q7

What adjustments or modifications, if any, have you made to the exercise regimen?

Other than the form cues you mentioned for the lower body stability exercises to ground my feet/think about tripod points on my foot, I have tried to be very exact to the exercise routine and suggestions. Week 1 I did mostly body weight to ease into it and week 2 I added bands and light weights. I want to continue to progress. I also really enjoy not being super exhausted after a workout. I know I am engaging the correct muscles and am working, but I am not completely worn out at the end. This is not something I am used to, but helps me balance my life and practice too.

S2 VA 2

1. How successfully have you been able to integrate the prescribed exercises into your routine?

Almost as prescribed

2. Which exercises do you find most beneficial, and why?

The sprints were something I never have done before and I really liked them actually. I was surprised. They were programmed well to where I still had energy. I also really enjoyed the full body lifts. They are really balanced and I think I am progressing on that day the most.

3. Have you encountered any difficulties or challenges in performing the exercises? If so, please describe.

During the fist week I struggled fitting this in my schedule, so I only did 3 days. I decided to do the 3 hardest workouts and I was pretty sore. I had not been going to the gym for almost a month before starting. The second week has been much better and I did all 5 days. I really think the lighter days helped me and that was a mistake I made on week one. Even though I am comfortable in the gym this program was pretty different than what I am used to

4. Have you noticed any changes in your overall physical fitness since starting the program? Please explain.

Being able to manage 5 days in the second week was a change for me. The first week was hectic and I only did 3 days but also was very sore and not ready for this programming physically. I think that it is a good sign especially since I am not sore after the second week at all.

5. Have you experienced any improvements in your vocal performance or vocal health? Please describe.

I noticed that I am able to keep my breathing much more controlled during the cardio sections and I hope that transfers to my breath stamina. I also have been feeling my breath as I am singing in a different way. It is more flexible and open since the dynamic breathing exercises you programmed.

6. Do you feel the exercises are tailored to your specific needs as a vocal athlete?

Yes

7. What adjustments or modifications, if any, have you made to the exercise regimen?

Like I said, the first week I only did three of the five workout days but other than that I have done the warmups, exercises repetitions, sets and cool downs as prescribed with my regular voice practice routine.

S2 VA 2 Coded

1. How successfully have you been able to integrate the prescribed exercises into your routine?

Almost as prescribed

2. Which exercises do you find most beneficial, and why?

The sprints were something I never have done before and I really liked them actually. I was surprised. They were programmed well to where I still had energy. I also really enjoyed the full body lifts. They are really balanced and I think I am progressing on that day the most.

3. Have you encountered any difficulties or challenges in performing the exercises? If so, please describe.

During the fist week I struggled fitting this in my schedule, so I only did 3 days. I decided to do the 3 hardest workouts and I was pretty sore. I had not been going to the gym for almost a month before starting. The second week has been much better and I did all 5 days. I really think the lighter days helped me and that was a mistake I made on week one. Even though I am comfortable in the gym this program was pretty different than what I am used to

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5. Have you experienced any improvements in your vocal performance or vocal health? Please describe.

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6. Do you feel the exercises are tailored to your specific needs as a vocal athlete?

Yes

7. What adjustments or modifications, if any, have you made to the exercise regimen?

Like I said, the first week I only did three of the five workout days but other than that I have done the warmups, exercises repetitions, sets and cool downs as prescribed with my regular voice practice routine.

S2 VA 3

1. How successfully have you been able to integrate the prescribed exercises into your routine?

Exactly as prescribed

2. Which exercises do you find most beneficial, and why?

The running and sprints were the exercises I liked best since it was similar to what I am used to with my running background. The gym exercises are pretty new to me but I think that specifically the upper body and core exercises are most beneficial but also learning curves for me technique and formwise.

3. Have you encountered any difficulties or challenges in performing the exercises? If so, please describe.

Nothing major, but the form was tough for me on the upper body exercises like I said. You did help me get it right and I definitely feel more engaged in the second week. The core exercises are tougher than they seem and with the slower tempo and breathing you recommended I feel so much more work being done with them.

4. Have you noticed any changes in your overall physical fitness since starting the program? Please explain.

I think the comfortability of being in the gym and working out again is the biggest change I have noticed. I don't see or really feel anything physically yet, other than some soreness the first week but nothing major. I am looking forward for that comfortability to lead to physical and vocal changes as I progress to week 3.

5. Have you experienced any improvements in your vocal performance or vocal health? Please describe.

I would say breathing for sure and just having my body be ready to sing. I mentally feel more prepared going into practice and also physically energized. I think that definitely plays a positive role. This energy allows me to be more confident and the comfortability in my body I see too and that is one of the goals I set out with when we started!

6. Do you feel the exercises are tailored to your specific needs as a vocal athlete?

Yes

7. What adjustments or modifications, if any, have you made to the exercise regimen?

I have been following it pretty religiously! Hoping to see some more noticeable changes in the next few weeks. Overall feeling very mentally and physically on it which I think leads into the voice too.

S2 VA 3 Coded

1. How successfully have you been able to integrate the prescribed exercises into your routine?

Exactly as prescribed

2. Which exercises do you find most beneficial, and why?

The running and sprints were the exercises I liked best since it was similar to what I am used to with my running background. The gym exercises are pretty new to me but I think that specifically the upper body and core exercises are most beneficial but also learning curves for me technique and formwise.

3. Have you encountered any difficulties or challenges in performing the exercises? If so, please describe.

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4. Have you noticed any changes in your overall physical fitness since starting the program? Please explain.

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5. Have you experienced any improvements in your vocal performance or vocal health? Please describe.

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6. Do you feel the exercises are tailored to your specific needs as a vocal athlete?

Yes

7. What adjustments or modifications, if any, have you made to the exercise regimen?

I have been following it pretty religiously! Hoping to see some more noticeable changes in the next few weeks. Overall feeling very mentally and physically on it which I think leads into the voice too.

14. Survey Results: Post-PER (S3)

S3 VA 1

1. How would you rate your overall experience with the exercise program on a scale of 1 to 10?

10

2. How would you rate your overall physical fitness now compared to before the program on a scale of 1 to 10?

9

3. How would you rate your vocal health now compared to before the program on a scale of 1 to 10?

9

4. What did you enjoy most about the program?

Probably the sense of progress and improvement over the month. It was incredibly rewarding and I love this part of my routine. Not only does it help clear my head, but it also supports and helps my career and vocal body.

5. What did you enjoy least about the program?

initial adjustment period. It was a bit challenging to adapt to the new routines and exercises, especially those that targeted muscle groups I hadn't focused on before.

6. Have you observed any long-term improvements in your vocal performance? If so, please describe.

My breath control has significantly improved, allowing me to sustain notes longer and with greater stability. My vocal range feels more flexible, and I experience less fatigue during long performances. The increased core strength has also helped with better posture, which positively impacts my vocal projection.

7. Have you observed any improvements in your physical health and fitness levels? If so, please explain.

100%. My overall stamina and energy levels have increased, making it easier to get through rehearsals and performances, thanks to all of the sprints. I've also noticed better muscle tone, particularly in my core and back, which has helped alleviate (and know how to) some of the tension I used to feel after long singing sessions.

8. Will you continue incorporating these exercises into your routine? Why or why not?

Yes, I will definitely continue incorporating these exercises into my routine. The benefits to both my vocal performance and physical health are undeniable. Maintaining a balanced exercise regimen helps me feel more grounded and prepared for the demands of my roles and practice. Plus, the exercises are now a part of my daily routine, and I enjoy the structure they provide - just like practicing now too!.

9. What additional resources or support would you find helpful in maintaining a balanced physical exercise and vocal training regimen?

I would suggest maybe online resources or a video guide on form would be nice! You were great with providing form tips, but having that accessible would be nice during a workout instead of after the fact via video/during a lesson. I also think that a community could be created out of this - that way it can be more social and shared.

10. Any additional comments or suggestions for improving the exercise program?

I would suggest to include more variety in the workouts to keep things interesting and engaging. I understand that this was just a short month long program, but I think it could be expanded well. Also, providing more information on the science behind each exercise and how it directly benefits vocal performance would be motivating!

S3 VA 1 Coded

1. How would you rate your overall experience with the exercise program on a scale of 1 to 10?

10

2. How would you rate your overall physical fitness now compared to before the program on a scale of 1 to 10?

9

3. How would you rate your vocal health now compared to before the program on a scale of 1 to 10?

9

4. What did you enjoy most about the program?

Probably the sense of progress and improvement over the month. It was incredibly rewarding and I love this part of my routine. Not only does it help clear my head, but it also supports and helps my career and vocal body.

5. What did you enjoy least about the program?

initial adjustment period. It was a bit challenging to adapt to the new routines and exercises, especially those that targeted muscle groups I hadn't focused on before.

6. Have you observed any long-term improvements in your vocal performance? If so, please describe.

My breath control has significantly improved, allowing me to sustain notes longer and with greater stability. My vocal range feels more flexible, and I experience less fatigue during long performances. The increased core strength has also helped with better posture, which positively impacts my vocal projection.

7. Have you observed any improvements in your physical health and fitness levels? If so, please explain.

100%. My overall stamina and energy levels have increased, making it easier to get through rehearsals and performances, thanks to all of the sprints. I've also noticed better muscle tone, particularly in my core and back, which has helped alleviate (and know how to) some of the tension I used to feel after long singing sessions.

8. Will you continue incorporating these exercises into your routine? Why or why not?

Yes, I will definitely continue incorporating these exercises into my routine. The benefits to both my vocal performance and physical health are undeniable. Maintaining a balanced exercise regimen helps me feel more grounded and prepared for the demands of my roles and practice. Plus, the exercises are now a part of my daily routine, and I enjoy the structure they provide - just like practicing now too!.

9. What additional resources or support would you find helpful in maintaining a balanced physical exercise and vocal training regimen?

I would suggest maybe online resources or a video guide on form would be nice! You were great with providing form tips, but having that accessible would be nice during a workout instead of after the fact via video/during a lesson. I also think that a community could be created out of this - that way it can be more social and shared.

10. Any additional comments or suggestions for improving the exercise program?

I would suggest to include more variety in the workouts to keep things interesting and engaging. I understand that this was just a short month long program, but I think it could be expanded well. Also, providing more information on the science behind each exercise and how it directly benefits vocal performance would be motivating!

S3 VA 2

1. How would you rate your overall experience with the exercise program on a scale of 1 to 10?

9

2. How would you rate your overall physical fitness now compared to before the program on a scale of 1 to 10?

9

3. How would you rate your vocal health now compared to before the program on a scale of 1 to 10?

9

4. What did you enjoy most about the program?

The exercises felt highly relevant and effective to vocalists. I think that this is innovative and I am glad that I was motivated to do this. I am noticing that dedication has taken over motivation for me. I am dedicated to my body and my health to support my craft now, instead of relying on (lacking) motivation.

5. What did you enjoy least about the program?

Like I said, especially the first week, some of the strength training exercises and sessions were quite demanding and took a while to get used to and fit them in my schedule. It was pretty tough to push through initially, but I am glad I did.

6. Have you observed any long-term improvements in your vocal performance? If so, please describe.

For sure, my vocal clarity and flexibility have enhanced, and I can sing with more consistent tone quality across the entirety of my range. I also noticed that my voice recovers more quickly after intensive singing sessions, which I love. The breath support techniques taught during the program have become second nature, too!

7. Have you observed any improvements in your physical health and fitness levels? If so, please explain.

I definitely have more energy throughout the day, and my overall endurance has increased. The program helped me develop stronger core muscles, and I have noticed better posture and reduced physical exertion during performances. I have also seen more flexibility in my sound and my body which is a huge plus since I've previously been very rigid. I've also experienced less tension in my shoulders and neck, areas that often felt tight before.

8. Will you continue incorporating these exercises into your routine? Why or why not?

Yes, they have become an essential part of my daily routine and have positively impacted my vocal and physical health journey. Continuing with exercise tailored to vocal training feels like the natural choice.

9. What additional resources or support would you find helpful in maintaining a balanced physical exercise and vocal training regimen?

An app or video library maybe? You were very accessible throughout the month for questions and form checks, but I think this could be a larger scale operation.

10. Any additional comments or suggestions for improving the exercise program?

I loved it and appreciate being a part of it! I would maybe provide more options for different skill levels and modifications at the start so that the program is a bit more inclusive and adaptable for everyone and they can make it work for them instead of trying to force it or lose confidence in it. I loved it and will continue!

S3 VA 2 Coded

1. How would you rate your overall experience with the exercise program on a scale of 1 to 10?

9

2. How would you rate your overall physical fitness now compared to before the program on a scale of 1 to 10?

9

3. How would you rate your vocal health now compared to before the program on a scale of 1 to 10?

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S3 VA 3

1. How would you rate your overall experience with the exercise program on a scale of 1 to 10?

10

2. How would you rate your overall physical fitness now compared to before the program on a scale of 1 to 10?

9

3. How would you rate your vocal health now compared to before the program on a scale of 1 to 10?

9

4. What did you enjoy most about the program?

The best part was seeing the improvement in both my voice and my overall fitness. The breathing exercises made a huge difference, and I felt my voice getting stronger every day. Plus, the workouts were a great way to stay active and energized. The whole program just felt really effective and rewarding.

5. What did you enjoy least about the program?

Probably some of the strength training exercises. They were pretty tough and took a while to get used to. Also, a few of the exercises felt repetitive after a while. It would have been nice to have a bit more variety to keep things interesting.

6. Have you observed any long-term improvements in your vocal performance? If so, please describe.

For sure! My voice feels more powerful and I can hold notes way longer without running out of breath. My range seems a bit wider too, and I don't get as tired during long sets so I can tell my stamina is at a higher level.

7. Have you observed any improvements in your physical health and fitness levels? If so, please explain.

I feel way more energized and my stamina has shot up. The core workouts have helped my posture and feeling my breath differently, which makes singing a lot easier especially in my mix. Plus, I've noticed my muscles are more toned and I'm not as sore after workouts!

8. Will you continue incorporating these exercises into your routine? Why or why not?

Definitely! These exercises have become part of my daily routine and I do feel a genuine difference. They help me keep my voice and body in top form.

9. What additional resources or support would you find helpful in maintaining a balanced physical exercise and vocal training regimen?

I think you were a great resource. Maybe more info on nutrition/sleep/exercise science would be nice? Not sure how to add that as a resource though.

10. Any additional comments or suggestions for improving the exercise program?

Just things to add, I think it was great and I am so glad I did it! Adding more variety to the workouts would be cool to keep things interesting and maybe adjusting the intensity levels for different fitness stages (beginner, intermediate, advanced) might be nice and easier to progress through.

S3 VA 3 Coded

1. How would you rate your overall experience with the exercise program on a scale of 1 to 10?

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15. Month-Long Expert Informed Physical Exercise Regimen for Healthy Vocal Athletes

Objective: To enhance cardiovascular fitness, strength, balance, mobility, stamina, endurance and breathing capacity to meet the high demands of vocal performance.

- Accessible for various skill levels → modifications
- Able to be done at home, outside or in a gym using body weight, resistance bands, dumbbells or full gym equipment (bar/machines)
- This regimen is designed to enhance both the physical and vocal performance of vocal athletes, addressing the unique demands of their roles while promoting overall health and longevity.

Week 1-4 Schedule

- Frequency**:** 5 days per week in addition and prior to your daily vocal routine
    - 3 days of combined aerobic cardio (with nasal breathing) and strength = tension stimulating
    - 2 days focused on mobility, balance, core and breathing = tension reducing
- Duration: ≈ 60 minutes per session
- Pre/post-workout breathing activities to cultivate support, expand the ribcage and pelvis to mimic singing posture
- Daily meditation and breathing is encouraged!

Notes for Each Week

Progression: Gradually increase intensity or complexity of exercises as fitness improves.
Breathing: Maintain breath flow through every exercise pattern, never hold your breath to avoid too much laryngeal pressure.
Hydration and Nutrition: Stay hydrated and maintain a balanced diet to support physical exertion and recovery.
Monitor: Keep track of your progress, noting any changes in stamina, strength, and vocal performance.
Form: Ask for form cues and film or complete exercises in a lesson for form feedback for efficacy and safety purposes.
Pain/Injury: At first sign of any pain or discomfort, please stop the exercises and notify me immediately.
Other factors: Focus and take notes on other health factors such as sleep, nutrition, social life, quality of life etc. Please do not destroy yourself with these workouts. Think that you are the professional athlete you are and you have to support your voice in a holistic manner.

Key Considerations and Tips

Cardio: Avoid anaerobic or High-intensity interval training (HIIT) as it can lead to excessive tension. Focus on steady-state aerobic cardio to improve lung capacity and alactic sprints for stamina.
Strength Training: Avoid placing heavy bars on the shoulders for prolonged sets, heavy upper body moves that compress ribcage, high rep exercise and heavy weighted bi-lateral moves.
Breathing and Mobility: Perform daily thorax/pelvic expansion activities and relaxed side-lying movements to maintain ribcage flexibility and inhalation capacity. Avoid mouth breathing.

Daily Breakdown
Day 1: Combined Cardio and Strength = Tension stimulating day

Warm-Up (5 minutes):
- Dynamic stretches (yoga flow)
- Balance exercises
    - Core engagement with standing on 1 leg (can use stabilizer at first or advance to using an unstable surface ex: bosu ball/pillow)
- Jumping to stimulate nervous system and upregulate to work

Pre Breathing Exercises (5 minutes):
- Diaphragmatic range of motion exercises
    - Side lying breaths
    - Supine prolonged exhales
    - Standing in stacked position using wall to stabilize/tension
- Try incorporating straw phonation or other vocal function exercises on to the breath

Leg Focused Strength/Resistance Training (20 minutes):
- Tempo goblet squats (3 sec down 3 sec up) for 3 sets of 10
- Small box jumps 30 sec on 30 sec off for 3 sets
- Unweighted walking lunges 15 reps each leg for 3 sets
- TRX/resistance band squats unweighted to failure (keeping posture and breathing)

Core Tension Development (10 minutes):
- Weighted position (plank/side plank)
    - Plank press rows with knee bend
    - Side plank pulses
- Drop down weight gorilla rows/squats 3 sets of 8
- Jumps 20 sec on 10 sec off for 6 sets

Cardio (10 minutes):
- Alactic sprints: 8 sec sprints with 90sec-2 minutes rest 6-8 sets at max speed/effort
    - Work up to 15 sec sprints (no more than 20 sec)
    - This can be done with a sled push/jumps/running with nasal breathing

Cool-Down (5 minutes):
- Static stretching
- Deep post breathing and relaxation exercises

Vocal Work: (Post workout - at least 30 min after)
- Follow your regular warm-up and practice routine (do not be afraid to do high stress singing)

Day 2: Mobility, Balance, Core, and Breathing = tension reducing day

Warm-Up (5 minutes):
- Gentle stretch flow focusing on flexibility and noticing areas of tension/strain
- Diaphragmatic range of motion exercises
    - Side lying breaths
    - Supine prolonged exhales
    - Standing in stacked position using wall to stabilize/tension

Balance and Mobility (15 minutes):
- Mobility flow using yoga poses
    - Downward facing dog, dancer pose, tree pose, side plank, warrior 2, cat cow, chair pose, anjaneyasana etc.

Pre Breathing Exercises (5 minutes):
- Diaphragmatic range of motion exercises
    - Side lying breaths
    - Supine prolonged exhales
    - Standing in stacked position using wall to stabilise/tension
- Try incorporating straw phonation or other vocal function exercises on to the breath

Light Cardio (15 minutes):
- Tiny jumps 20 sec work 10 sec rest for 10 sets
- 10 minutes of light cardio (incline walk, jog, row, bike) where you can breathe through the nose and work continuously
    - Incorporate vocal function exercises as you progress

Core Control (10 minutes):
- Deadbugs 40 sec on 20 sec off for 5 sets
- Standing core 40 sec on 20 sec off superset for 3 sets
    - Marches
    - Weighted carries

Cool-Down (10 minutes):
- Progressive muscle relaxation with stretching
- Mindfulness meditation focusing on breath and body awareness

Vocal Work: (Post workout)
- Lower load/tension vocal practice

Day 3: Combined Cardio and Strength = Tension stimulating day

Warm-Up (5 minutes):
- Dynamic stretches
    - Legs, thorax, and arms
- Balance exercises
    - Core engagement with standing on 1 leg (can use stabiliser at first or advance to using an unstable surface ex: bosu ball/pillow)
- Jumping to stimulate nervous system and upregulate to work

Pre Breathing Exercises (5 minutes):
- Diaphragmatic range of motion exercises
    - Side lying breaths
    - Supine prolonged exhales
    - Standing in stacked position using wall to stabilise/tension
- Try incorporating straw phonation or other vocal function exercises on to the breath

Arm Focused Strength/Resistance Training (20 minutes):
- Bench/DB/Band chest press at about 75% effort
- Incline push up (3sec up 3sec down pace)
- Gorilla rows 3 sets of 10 reps each arm
- Single arm high to low rows (cable/band) 3 sets of 10 reps each arm

Core Tension Development (10 minutes):
- Weighted position (plank/side plank)
    - Plank press rows with knee bend
    - Side plank pulses
- Drop down weight gorilla rows/squats 3 sets of 8
- Jumps 20 sec on 10 sec off for 6 sets

Cardio (15 minutes):
- 3 minute sprint (faster throughout interval → max speed) with 2 minute rest for 3 sets
    - Overtime shorten the work interval and increase the speed

Cool-Down (5 minutes):
- Static stretching
- Deep post breathing and relaxation exercises

Vocal Work: (Post workout - at least 30 min after)
- Follow your regular warm-up and practice routine (do not be afraid to do high stress singing)

Day 4: Mobility, Balance, and Breathing = Tension reducing day

Warm-Up (5 minutes):
- Gentle stretch focusing on flexibility and noticing areas of tension from previous workouts
- Diaphragmatic range of motion exercises
    - Side lying breaths → relax rib cage front to back and improve inhalation capacity
    - Supine prolonged exhales
    - Standing in stacked position using wall to stabilise/tension

Balance and Mobility (10 minutes):
- Mobility flow using yoga poses
    - Downward facing dog, dancer pose, tree pose, side plank, warrior 2, cat cow, chair pose, anjaneyasana etc.

Pre Breathing Exercises (5 minutes):
- Diaphragmatic range of motion exercises
    - Side lying breaths
    - Supine prolonged exhales
    - Standing in stacked position using wall to stabilise/tension
- Try incorporating straw phonation or other vocal function exercises on to the breath

Light Cardio (15 minutes):
- Tiny jumps 20 sec work 10 sec rest for 10 sets
- 10 minutes of light cardio (incline walk, jog, row, bike) where you can breathe through the nose and work continuously
    - Incorporate vocal function exercises as you progress

Core Control (10 minutes):
- Deadbugs 40 sec on 20 sec off for 5 sets
- Standing core 40 sec on 20 sec off superset for 3 sets
    - Marches
    - Weighted carries

Cool-Down (10 minutes):
- Progressive muscle relaxation with stretching
- Mindfulness meditation focusing on breath and body awareness

Vocal Work: (Post workout)
- Lower load/tension vocal practice

Day 5: Combined Cardio and Strength = Tension stimulating day

Warm-Up (5 minutes):
- Dynamic stretches (yoga flow)
- Balance exercises
    - Core engagement with standing on 1 leg (can use stabiliser at first or advance to using an unstable surface ex: bosu ball/pillow)
- Jumping to stimulate nervous system and upregulate to work

Pre Breathing Exercises (5 minutes):
- Diaphragmatic range of motion exercises
    - Side lying breaths
    - Supine prolonged exhales
    - Standing in stacked position using wall to stabilise/tension
- Try incorporating straw phonation or other vocal function exercises on to the breath

Full Body Strength/Resistance Training (20 minutes):
- Single leg deadlift (dumbbell/kettlebell/unweighted) 3 sets 10 reps each leg
- Gorilla rows 3 sets of 15 reps each arm
- Single leg split squat or alternating reverse lunge (weighted or unweighted) 3 sets of 15 reps each leg
- Incline push up to failure (keeping form and breathing)

Core Tension Development (10 minutes):
- Weighted position (plank/side plank)
    - Plank press rows with knee bend
    - Side plank pulses
- Drop down weight gorilla rows/squats 3 sets of 8
- Jumps 20 sec on 10 sec off for 6 sets

Cardio (10 minutes):
- Alactic sprints: 8 sec sprints with 90sec-2 minutes rest 6-8 sets at max speed/effort
    - Work up to 15 sec sprints (no more than 20 sec)
    - This can be done with a sled push/jumps/running/bike with nasal breathing

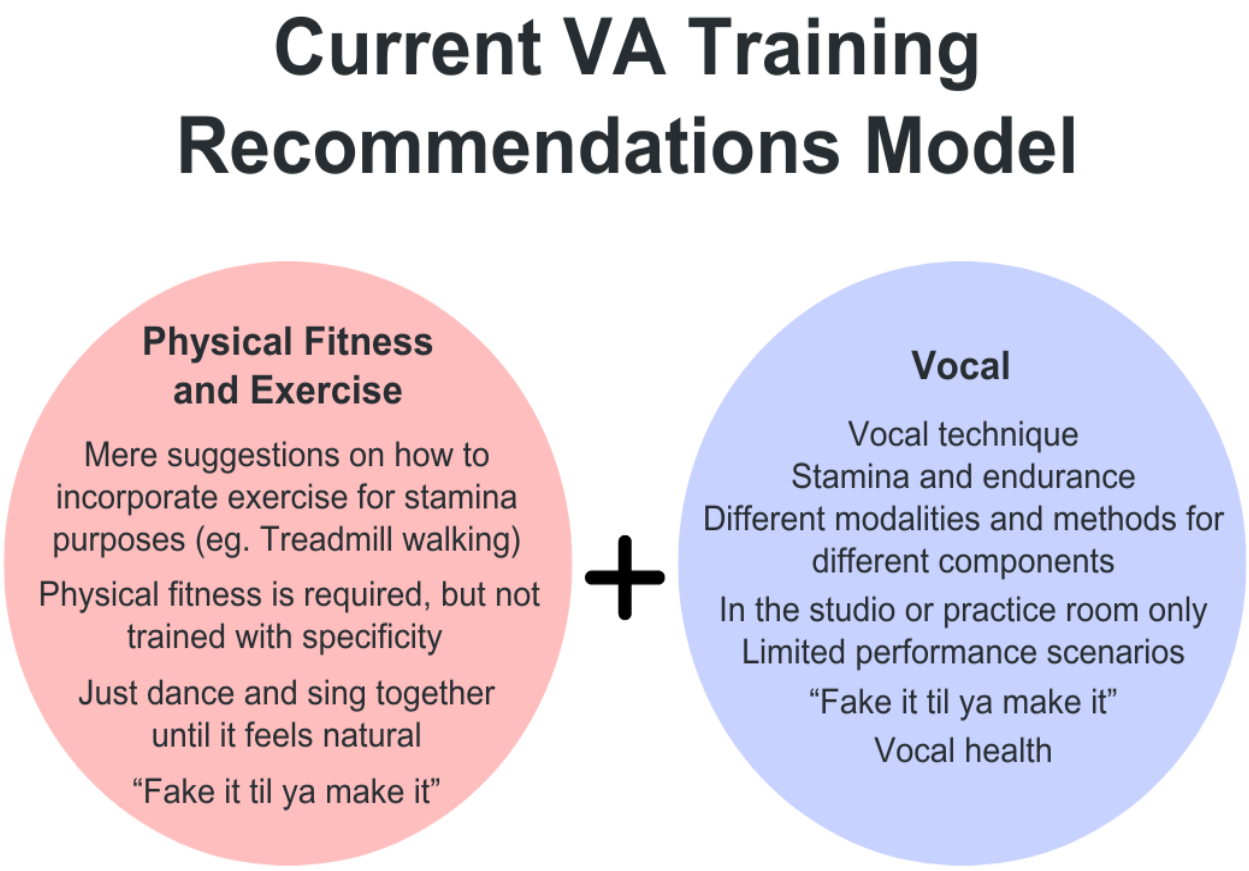
Cool-Down (5 minutes):
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Vocal Work: (Post workout - at least 30 min after)
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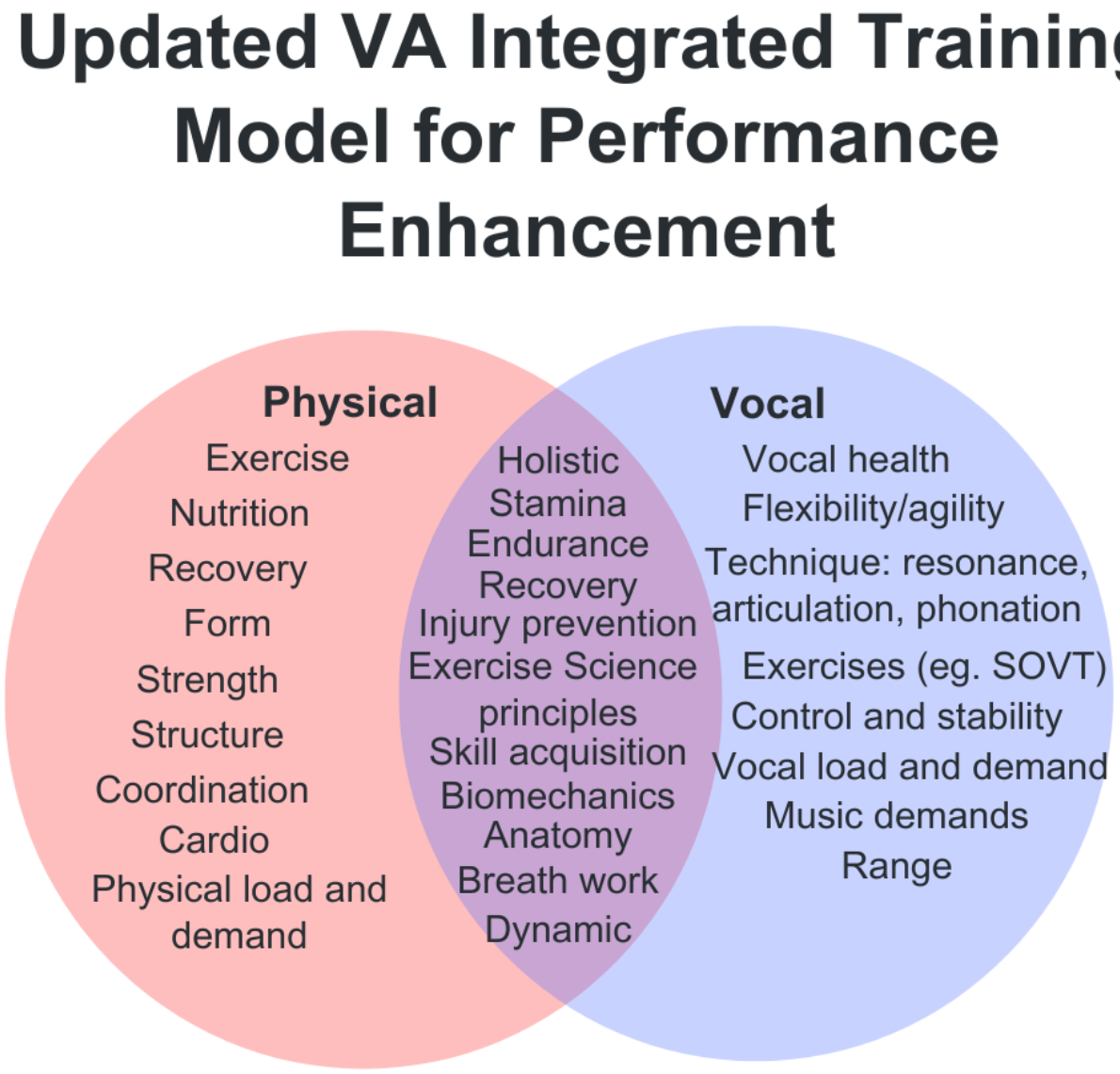
Day 6 & 7: Active Rest and Recovery

- Engage in light physical activities such as walking, gentle yoga, or stretching
- Aerobic Cardio: 30-45 minutes steady-state with nasal breathing to recover and expand the airway
- Focus on rest, meditation and recuperation, including adequate sleep, hydration, and nutrition

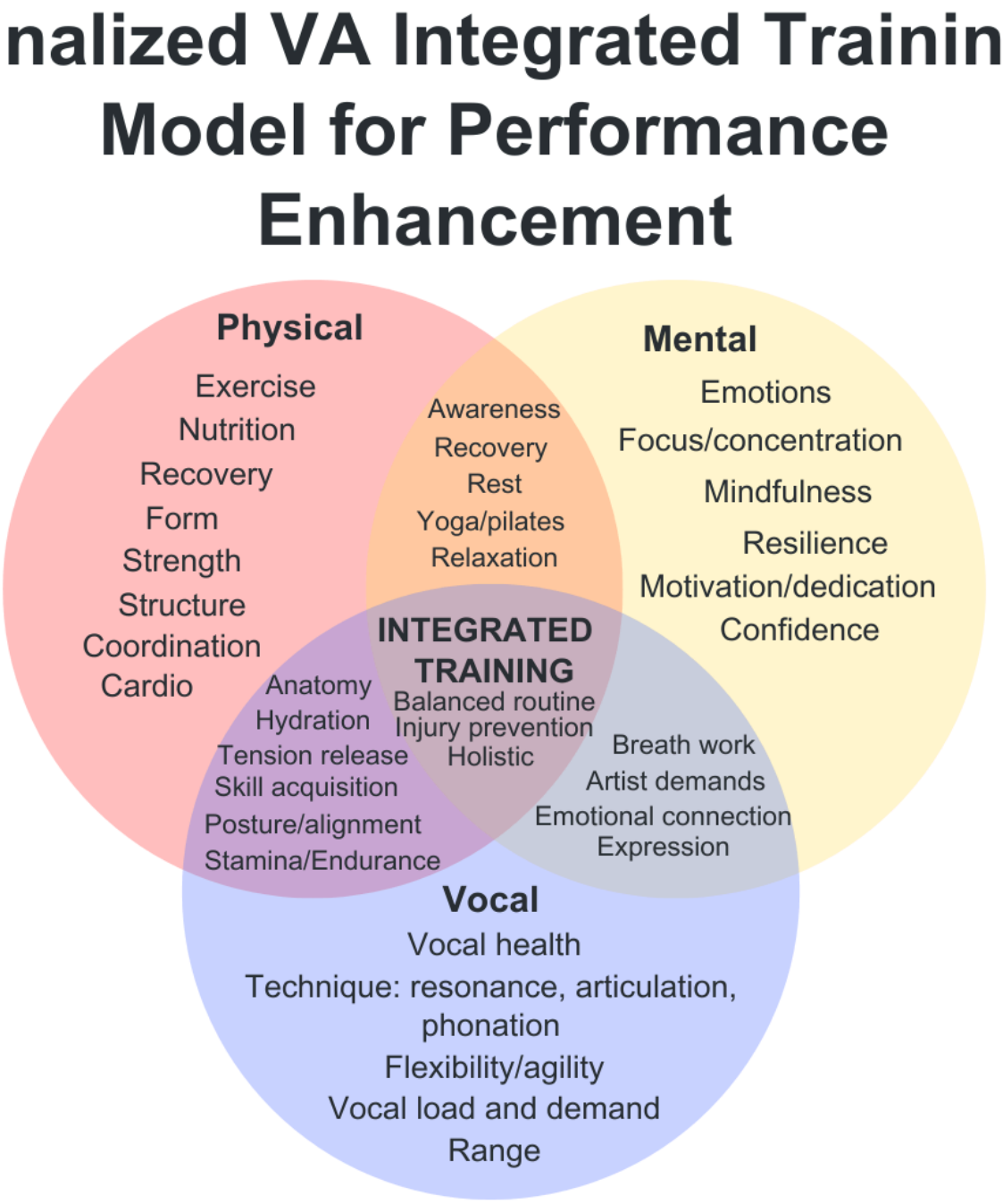
16. Framework 1: Current Training Recommendations Model



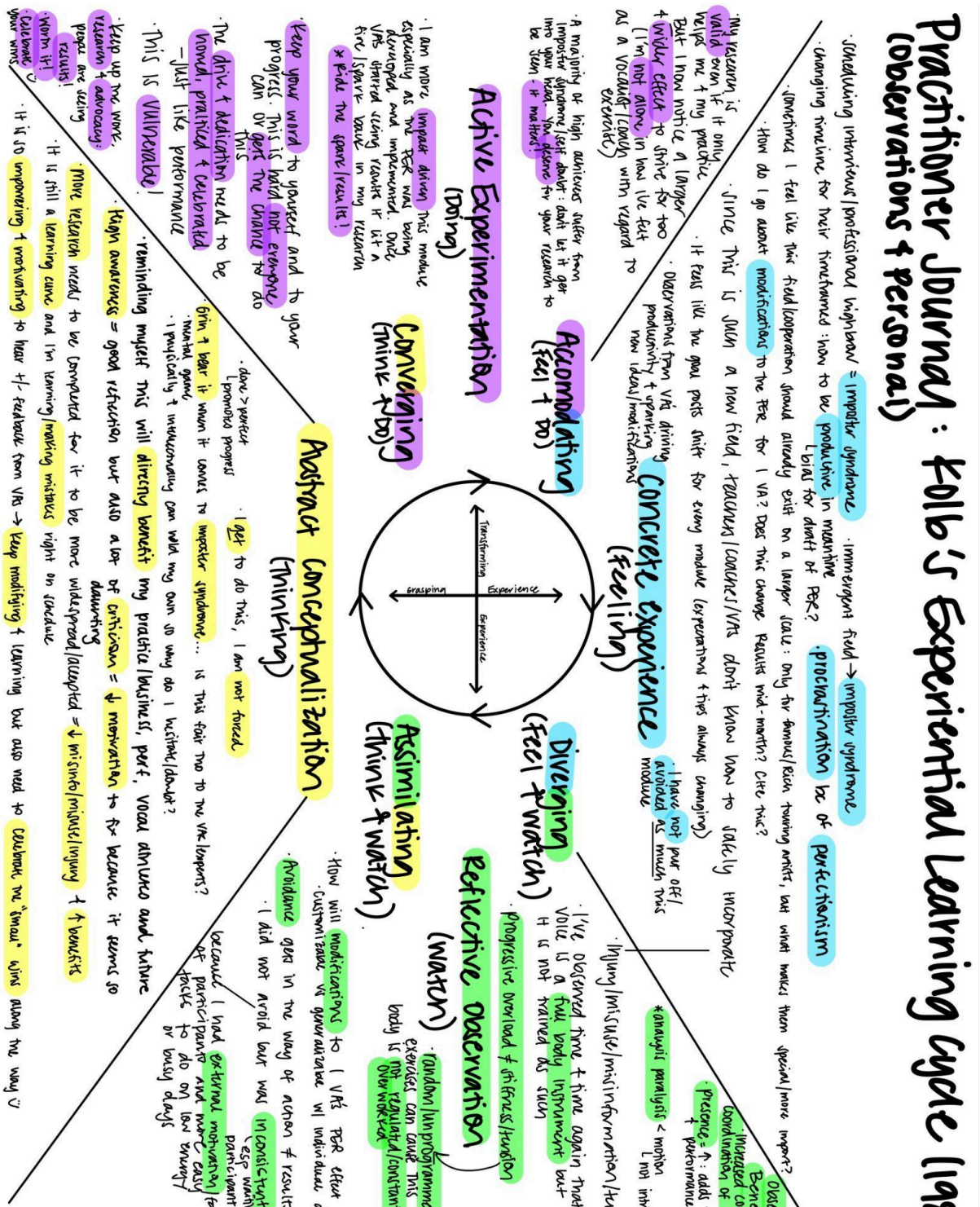
17. Framework 2: Updated Training Model



18. Framework 3: Finalized Training Model



19. Journal Excerpts Within Kolb's Experiential Learning Cycle (1984) Reflective Framework



20. Figures

Figure 1: The Central Role of Theory - the Qualitative Process

The Central Role of Theory
The Qualitative Process
(Collins & Stockton, 2018)

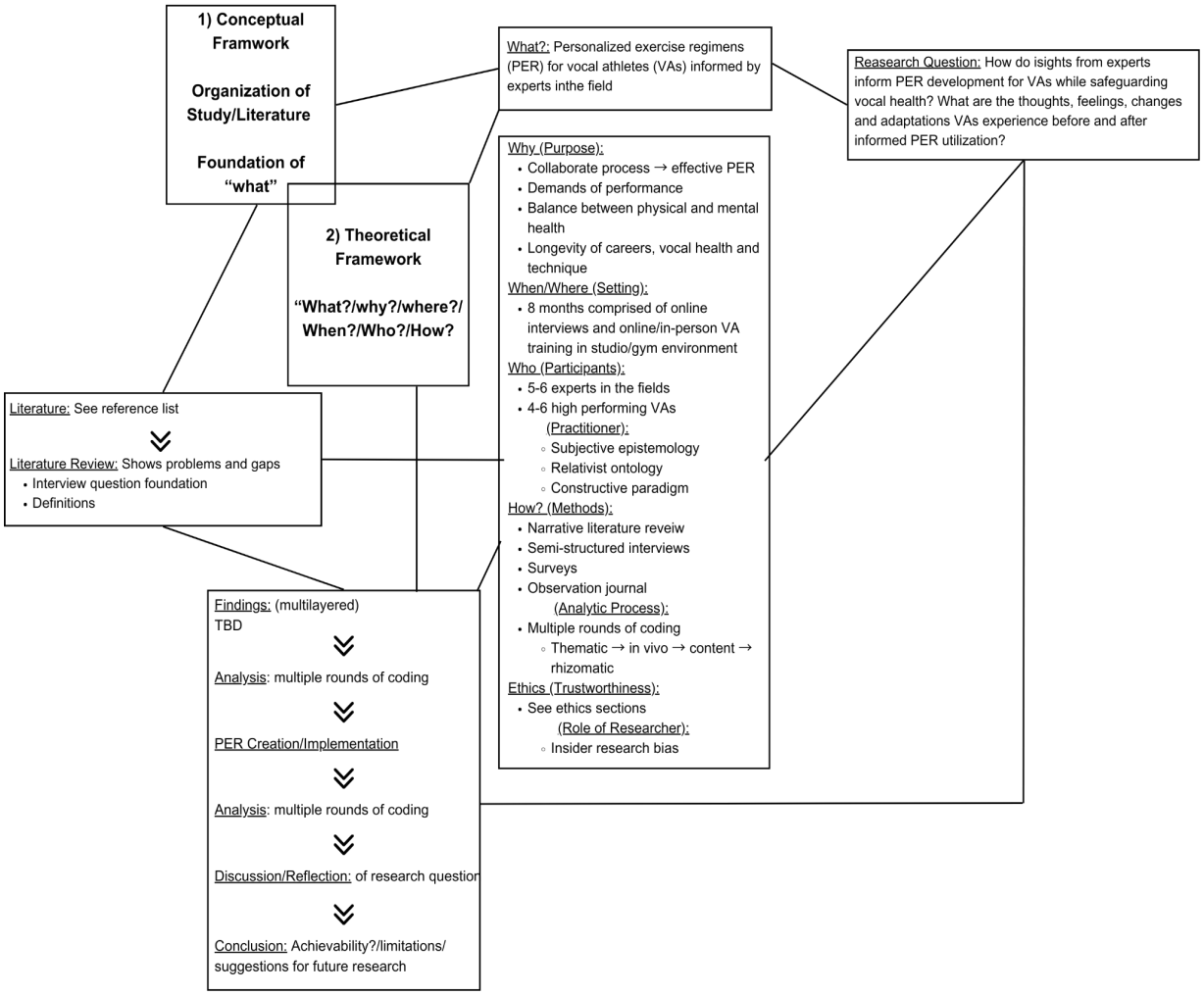


Figure 1: The Central Role of Theory - the Qualitative Process (Draft)

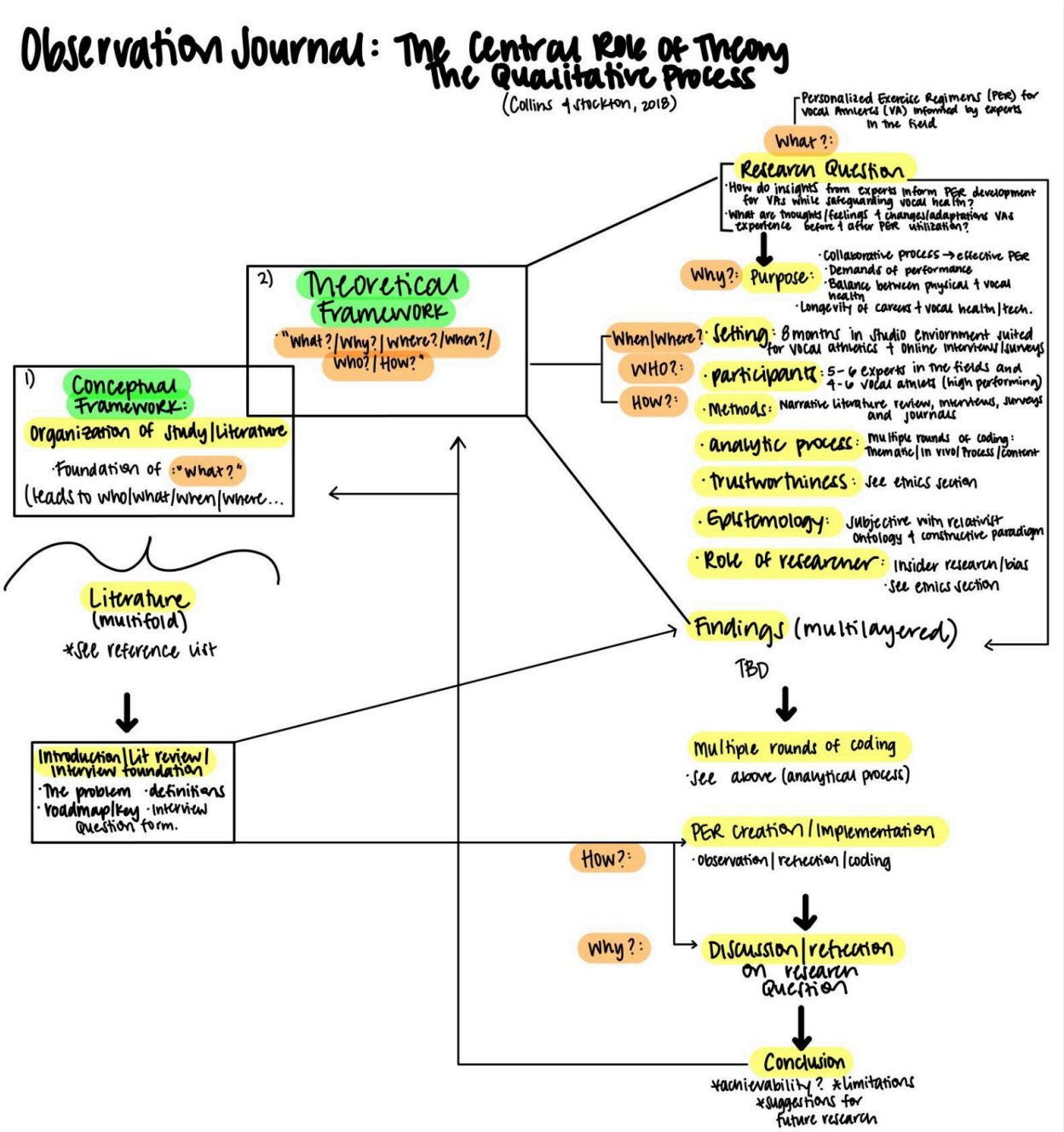


Figure 2: Proposed Research Timeline (Finalised)

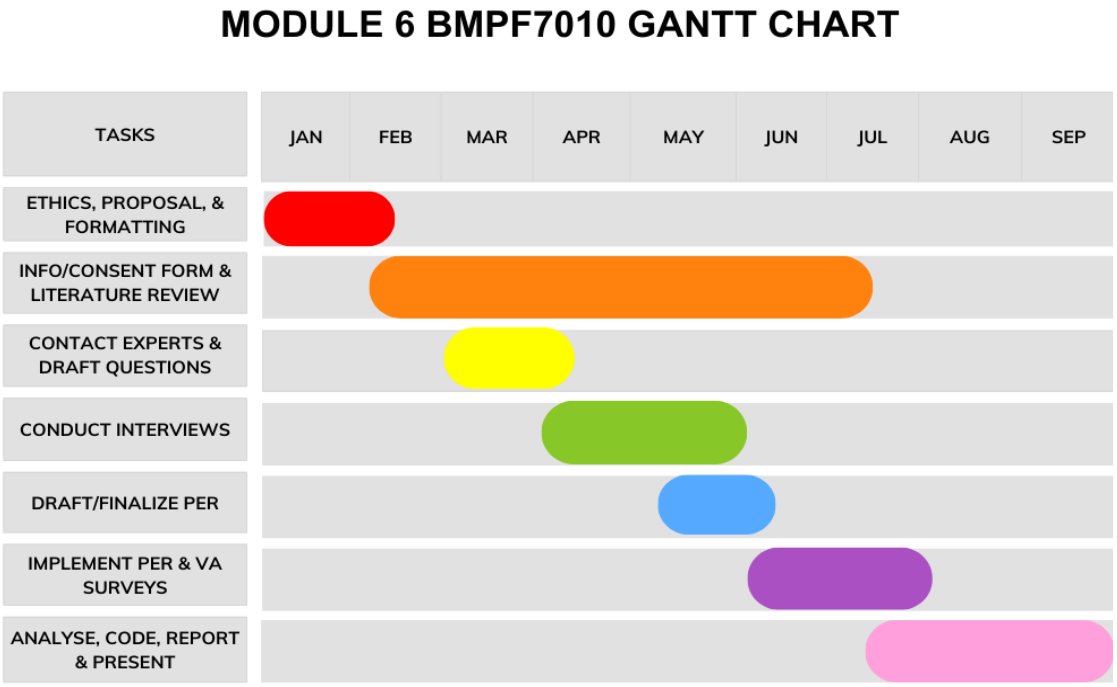


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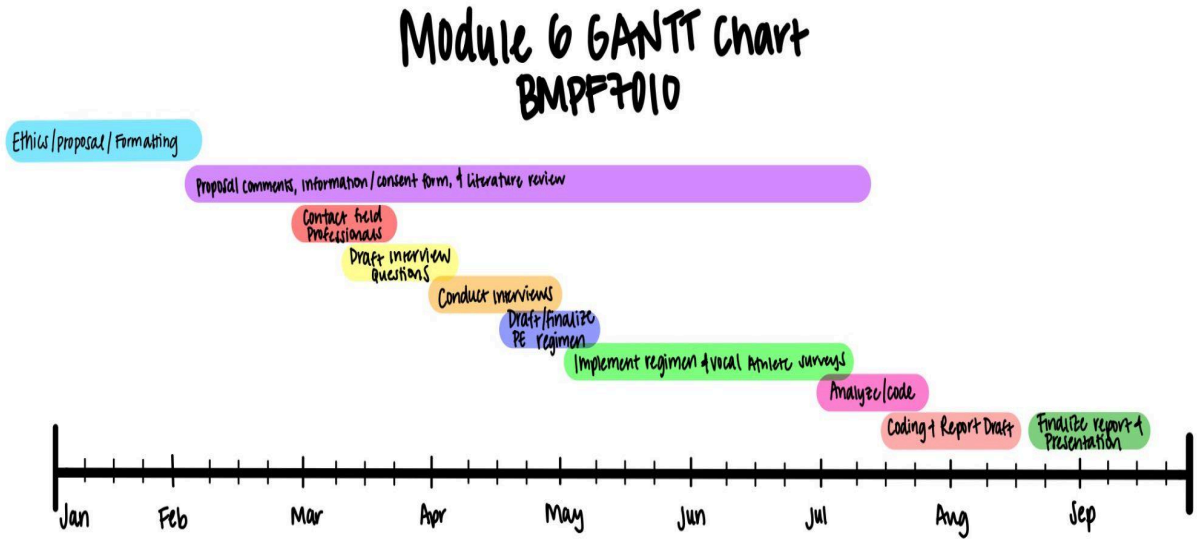


Figure 3: Updated Research Timeline (Finalised)

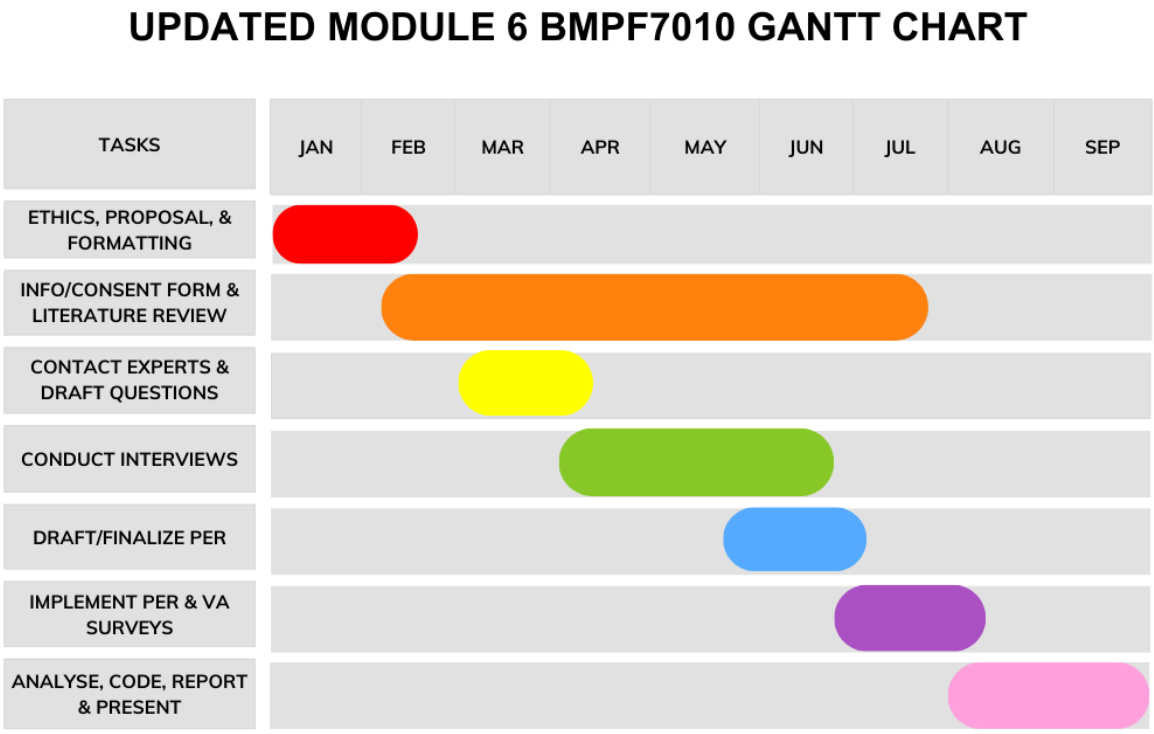


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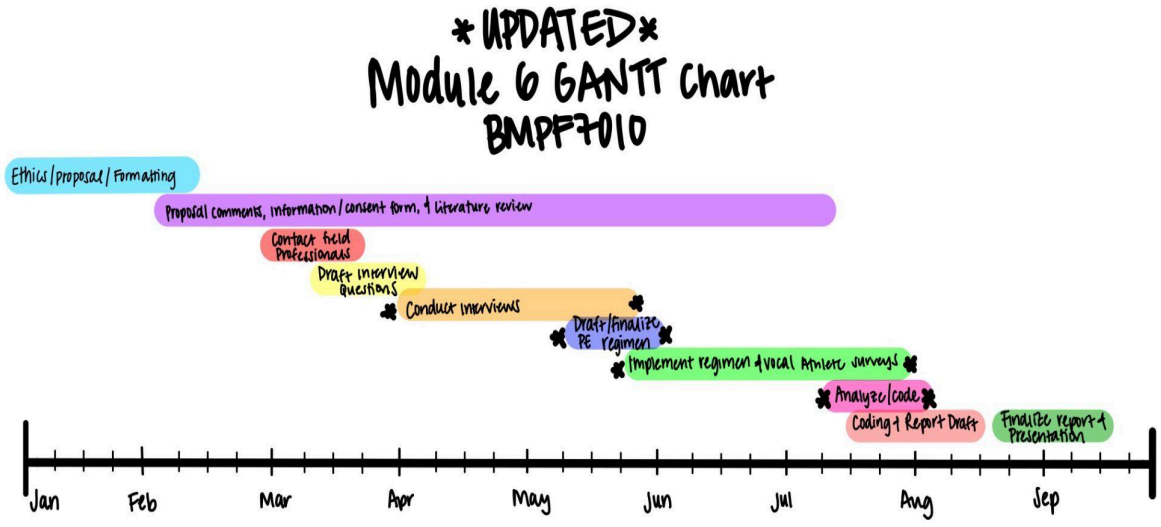


Figure 4: Data Collection Timeline (Finalised)



Figure 4: Original Data Collection Timeline (Draft)



Figure 5: Literature Review Theme Chart

Figure 6: Expert Interview Coding Round 3 - Themes Via Rhizomatic Coding Brain Map

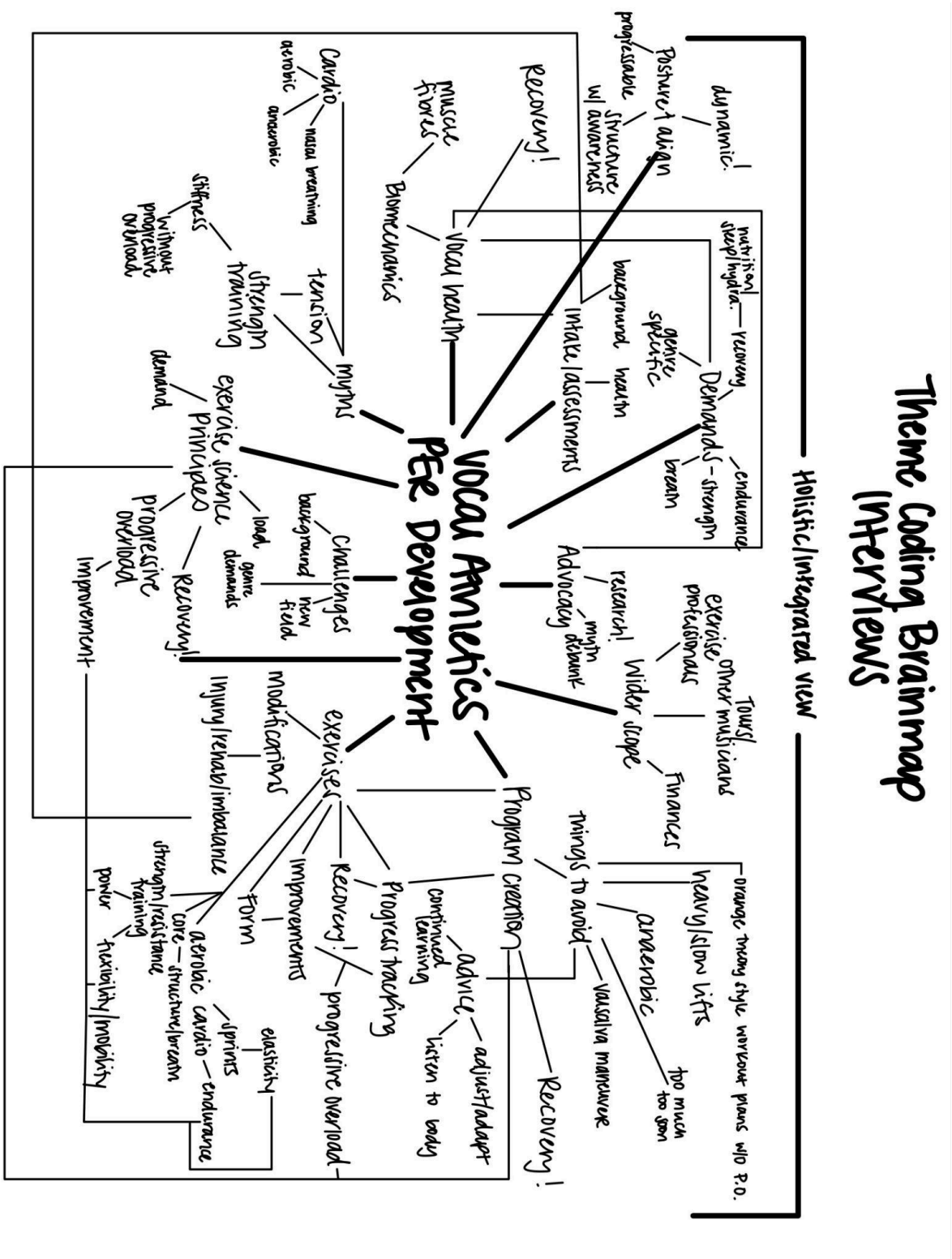


Figure 7: VA Survey Coding Round 3 - Themes Via Rhizomatic Coding Brain Map

