

Volume 3  
Issue 2

Paul Patinka, Editor  
Eimear McCarthy Luddy, Assistant Editor

# HANDS-ON VOCOLOGY

## What can the Singing Teacher Learn from Interdisciplinary Rehabilitative Practice?

Jenevora Williams PhD ARCM

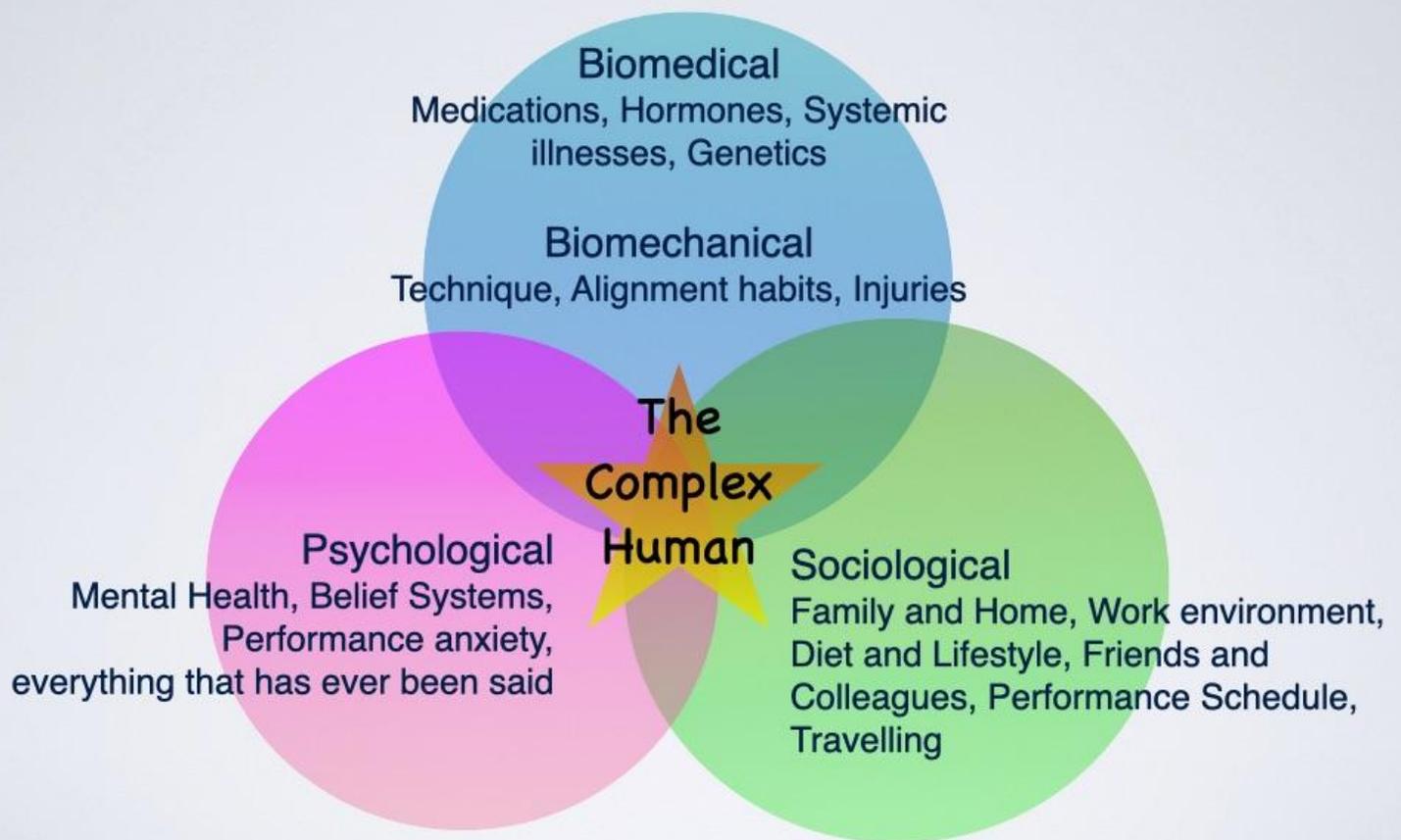
Director of Education, Vocal Health Education

Director, Evolving Voice

‘There is more that unites us than that which divides us’, Jo Cox

The singer is a complex human, their voice is affected by every aspect of their being. In order to fully understand our students, we connect with the whole person; we have a picture of their past experience and their current environment, we know their ups and downs, their worries and wishes. Is there an epistemological framework for this understanding? How do we fulfill our role as a facilitator of learning for all singers more effectively? I am proposing that we look to the singing voice rehabilitation specialist for some suggestions here. The SVS or VRS will have trained in many areas: as well as being an experienced performer and teacher, they will have studied functional anatomy and pathology, clinical and endoscopic observation, rehabilitation techniques, nutrition and exercise, manual therapy and counseling skills. This combination of knowledge and understanding will enable the specialist to work with the singer from a holistic, biopsychosocial perspective.

Let's dig a little deeper into what is meant by biopsychosocial. When we work with a singer, we will have studied voice pedagogy – giving us an understanding of the link between anatomy and vocal behavior, an ability to hear a voice and have a concept of the mechanism of action. We also know the repertoire and performance context for that singer. We may also appreciate their cultural background, and be familiar with the setting of their home and family. When we get to know our students, we will be aware of how confident they are, what triggers them, what excites them. This bigger picture weaves together a sense of identity for every individual we work with, and this sense of self is at the center of the biopsychosocial model.



The rehabilitation specialist will be working with a team of specialists in other areas to provide an interdisciplinary setting; the singing teacher, working mostly alone, can benefit from an understanding of many disciplines that are interwoven to create a holistic approach.

The singing teacher is not a counselor or psychotherapist. This, however, does not preclude the singing teacher from being empathetic, considering their use of language carefully, and understanding the implications of the student's lived experience on their vocal identity. There are important things to find out, so you begin with open questions: "when this happens, how does it make you feel?" or "what do you do to unwind and relax?" Or you can give simple options: "does that feel easier or more of a challenge?" or "does that feel familiar or unusual?" The answer can guide you to more closed questions. The singing teacher needs some knowledge of the impact of past trauma, mental health issues and neurodiversity. This will not make them an amateur psychologist, it merely illuminates for them the boundaries between empathy and therapy. You can't know how far is too far unless you have an idea of what could be on the other side.

The singing teacher is not a clinical diagnostician (only a doctor can be this). The teacher will, however, continually use their ears and eyes to assess the health and efficiency of the student's singing. They will be hearing the subtle nuance of a voice that is tired, that is tight or that is struggling to function with no clear explanation. They will be the one to recommend a referral, effectively flagging up concern and signposting to specialist help.

The singing teacher is not a manual therapist, dietician, or fitness expert. They will, however, have a working knowledge of the healthy bodymind and be able to understand the links between lifestyle, mindset and health. Rehabilitation practitioners will have an initial assessment protocol, this is to establish the biomedical context for the client. However, broader questioning is often absent in clinical settings, where there is limited time and the focus tends to be biomedical. The singing teacher has an ongoing working relationship with the singer that will contextualize and illuminate the influences of health and wellbeing.

It is very important that the singer seeks expert assessment from a laryngologist if there is any unexplained change to the voice that doesn't resolve in 2–3 weeks. Although the responsibility is then handed to the rehabilitation team, the singing teacher will be the first and the last link in the chain of care for that singer. Their wider and deeper knowledge of the singer will be a crucial link for the team. The singing teacher is a transdisciplinary expert, one who knows their limits and boundaries, but only from a working knowledge of the land on either side of every boundary.

We can put all of this into the context of the neurology of learning and healing. As psychoneuroimmunology becomes more widely researched, we have a possible explanation for the placebo effect. Look after someone holistically, show them some genuine care, and rates of recovery improve. In the teaching studio we know that the singer will learn more quickly and effectively when they feel safe, unjudged and happy. For both the learning and the healing environments we need to take time, to place the singer at the center of the process, to listen to their story and treat them with kindness and respect.

There is more to improving your singing than just learning technique and repertoire. Expressive and uninhibited voices can only truly emerge when the individual has found a safe place to explore and create, to understand what balanced function feels like, and to integrate their personality and imagination into their vocal identity. This is totally dependent upon the integration between a healthy mind and body. Ultimately the teacher's role necessitates a holistic consideration of the student, hearing their story and understanding where they are coming from. Only then can you help them to find where they are going.

# Science and Research

## Effects of Gender Affirming Binding on Respiration for Transgender and Gender Non-Conforming Singers

Emma Ujifusa, MM (she/they)

Ian Howell, DMA (he/him)

### Abstract

Many transgender and gender-non-conforming individuals experience gender dysphoria which is defined by the American Psychiatric Association as the “psychological distress experienced by many transgender and gender diverse individuals, resulting from an incongruence between one’s sex assigned at birth and one’s gender identity.” Many gender non-conforming individuals who are Assigned Female at Birth (AFAB), also experience dysphoria specific to the development of breast tissue, chest dysphoria, and engage in a practice known as binding. This case study focused on two questions: How does wearing a binder affect rib and abdomen expansion for singing? and How does wearing a binder affect the total lung capacity? This case study was conducted using a RespTrack Respiratory Inductance Plethysmography system. Changes in rib cage and abdominal circumference were measured during two tasks under three conditions. As the subject put on more binders, there was a decrease in total lung capacity. However, though the total lung capacity decreased with more pressure from additional binders, there was not a significant restriction in the range of motion of the ribcage.

## Introduction

The purpose of this research is to observe the effects of gender affirming chest binders on respiration for singing. Due to the lack of research on the effects of binding, there are a plethora of questions to be studied about how respiration is adjusted in response to a singer wearing a binder. There were two main questions this case study focused on: How does wearing a binder affect rib and abdomen expansion for singing? and How does wearing a binder affect the total lung capacity? This case study compares rib and abdominal wall movement for breathing for singing with no binder, with a binder, and while wearing two binders using the RespTrack system.

## Methodology

This case study was conducted using a RespTrack Respiratory Inductance Plethysmography system. Changes in rib cage and abdominal circumference were measured during two tasks under three conditions. The subject was a 23-year-old AFAB classical singer in their first year of graduate study. They had no prior experience wearing or singing in a binder. During the first task, the subject took 7-10 breaths exploring vital capacity. The second task was 5 repetitions of the same musical excerpt from Giacomo Puccini's, "O mio babbino caro." Tasks were repeated under three conditions: with no binder, one binder, and two binders. Binders used were two correctly sized Gc2b half tank binders in a size small. This size is intended for a person whose chest measures between 32-34in. and a shoulder width between 13-16in. The subject's lung volume was calibrated according to manufacturer's instructions and statistical analysis was applied to compare both tasks across all three conditions.

## Results

In the Vital Capacity Task with no binder, the median lung volume > Resting Equilibrium Level (REL) was 1609.218 mL, with one binder 1248.230 mL, and with two binders 1018.962 mL. As binding increased, lung volume decreased. Figure 1 (Difference in range of motion of RC and AB compared to overall lung volume in vital capacity task) shows the range in motion of the Rib cage (blue) and Abdomen (yellow) during the Vital Capacity Task. The first condition is indicated with circles, the second with triangles, and the third with squares. A linear regression was calculated for all three conditions as indicated by the dotted lines. The blue lines, Rib cage (RC) expansion, show a high positive correlation ( $R^2 = 0.9758, 0.981, \text{ and } 0.9053$ ) between the range of rib expansion and an increase in total lung volume. Figure 1 is color-coded based on the three conditions: no binder (blue), one binder (orange), and two binders (gray).

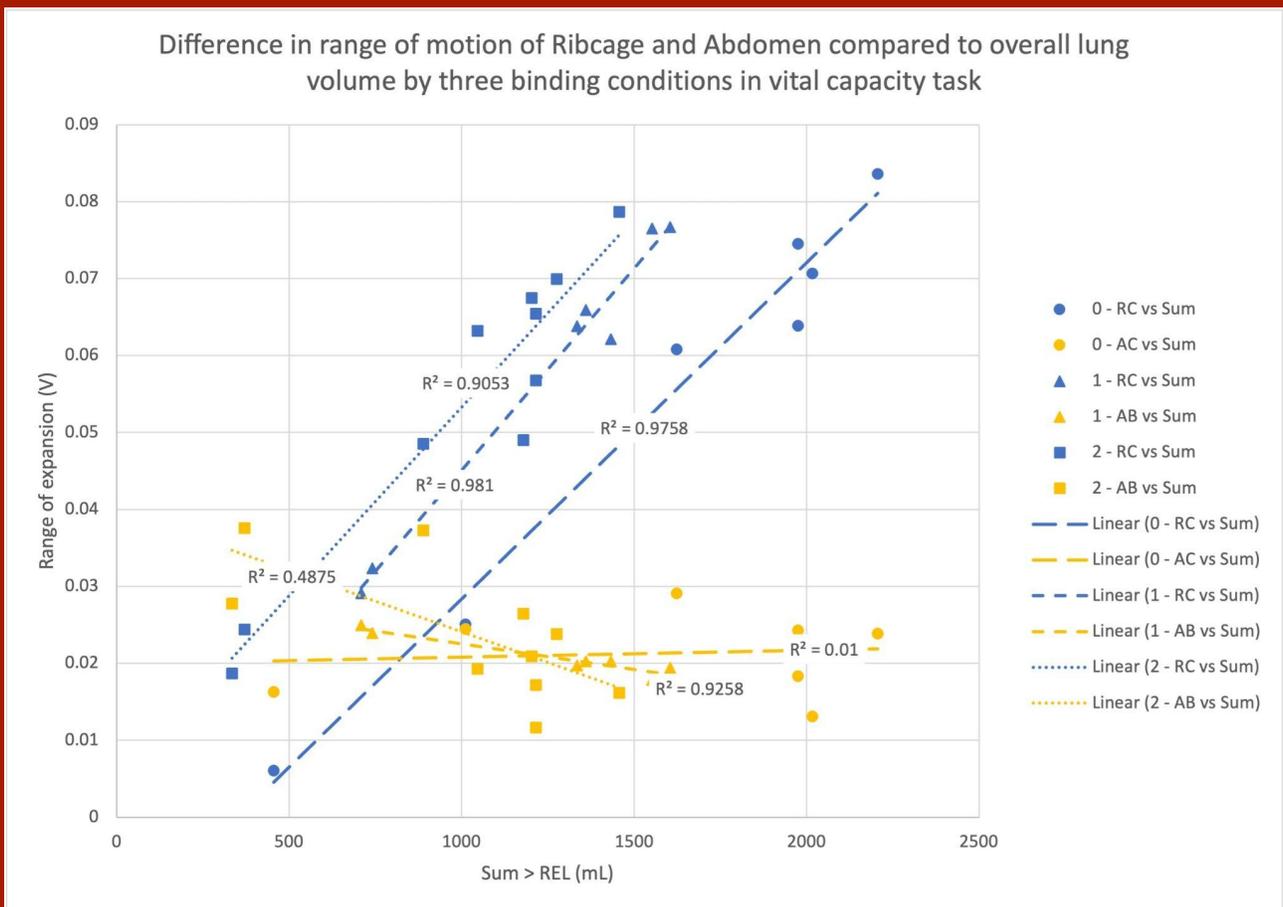


Figure 1

Figure 2 (RC and AB expansion against Total Lung Volume > REL Vital Capacity Test) standardizes the rib cage and abdominal expansion data as a function of total lung volume. The same pattern, (1) that the greatest lung volumes are achieved as a result of ribcage expansion and (2) that abdominal contraction correlates with higher ribcage expansion as binding forces increase, is visible. Directly put, as binding forces increase, rib cage and abdominal expansion is increasingly inversely related.

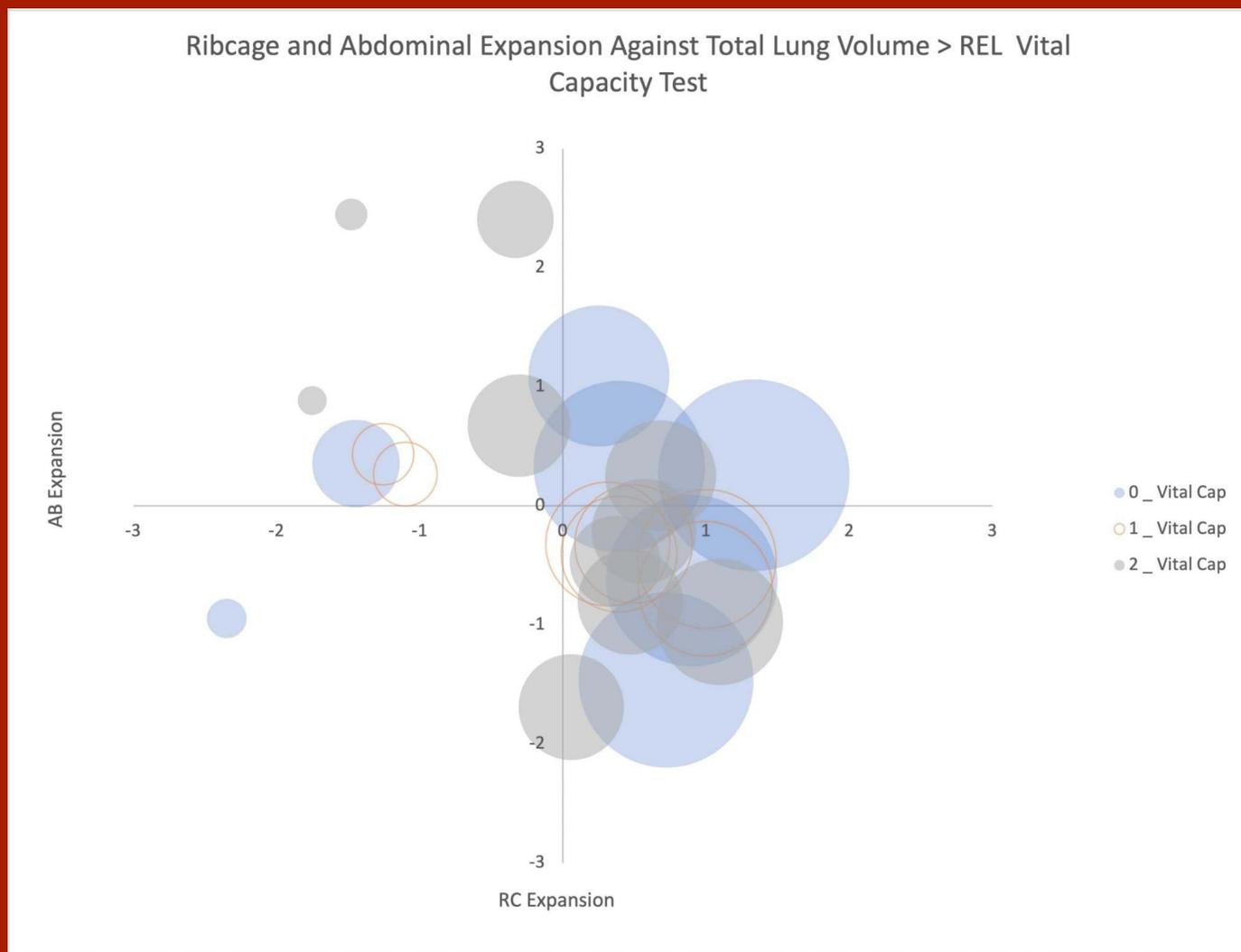


Figure 2

Figure 3 (Duration of singing > REL (s)) shows the amount of time in seconds that the subject was able to sing above REL. The median duration of the singing task with no binder was 4 s with one binder 3.658 s, and with two binders was 3.299 s. As binding increased, the median amount of time the subject sang above REL decreased by more than half a second. On the third task, the lower limit of singing above REL was only 2.699 s.

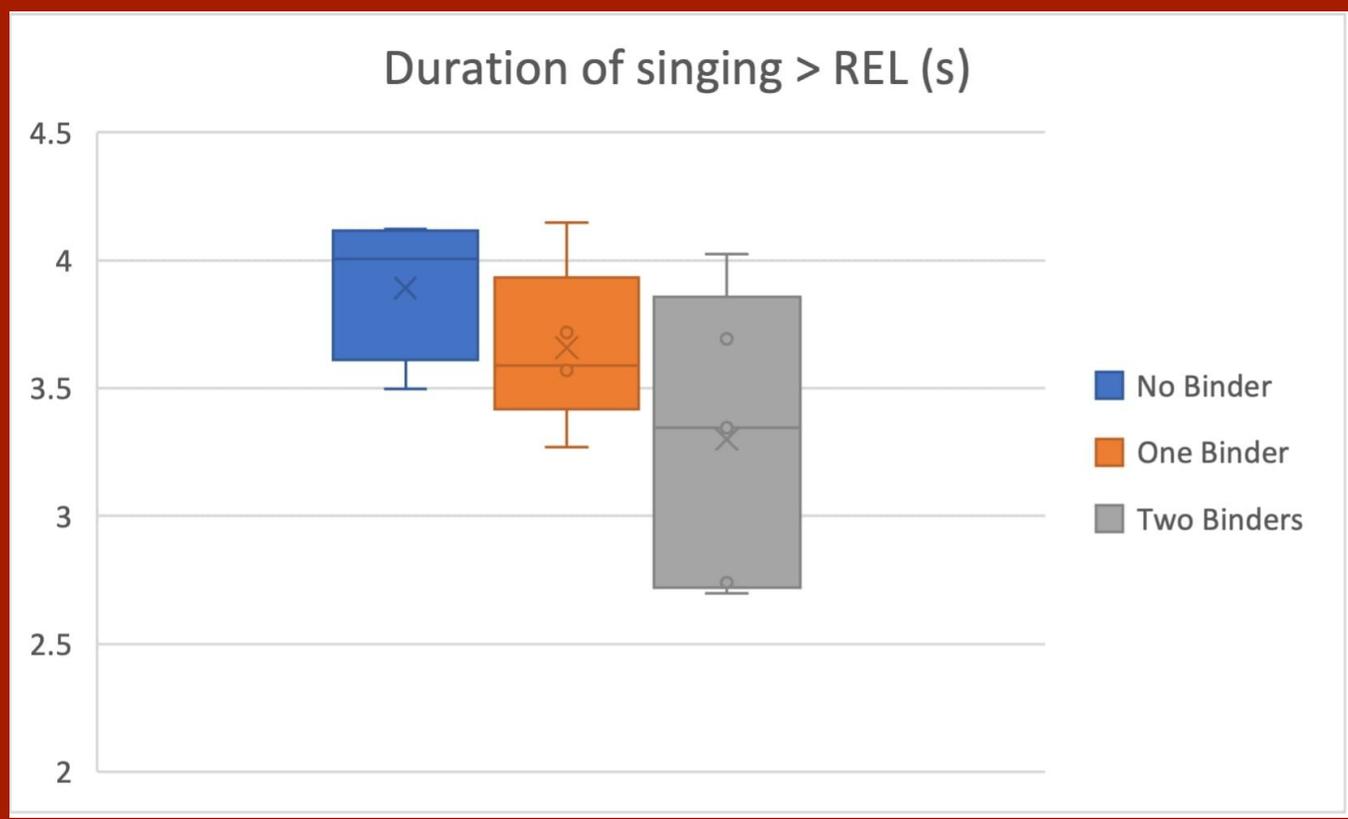


Figure 3

## Limitations

This study does not account for the many differences between the ways different singers breathe, especially depending on the size of their chest cavity and the amount of breast tissue. In future studies, it will be important to compare the potential for breathing differences in different singers of different sizes. This study also only measured the effects of half tank binders from G2CB. Further effects of respiration could be studied comparing different measures of compression between brands as well as differences between full and half tank binders. Additional considerations for future study are the relationship between Total Lung Volume and flow phonation as well as the effects of chest binding over time and how this may change how a singer's breathing strategies.

## Conclusions

Binding is an important part of mental health care for Transgender and Gender Non-Conforming individuals. As singing is an incredibly vulnerable performance art form, a person experiencing gender dysphoria and/or chest dysphoria may experience an added layer of anxiety. It is important to ensure that Gender Non-Conforming singers can feel as comfortable and confident as possible in their daily life, and especially on stage. This case study is just the beginning of potential scholarship on respiration considerations for people who wear binders.

## References

American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Washington, DC: Author; 2013, 451.

Heldner, Mattias, Marcin Włodarczak, Peter Branderud, and Johan Stark, "The RespTrack System," Phonetics Laboratory, Department of Linguistics, Stockholm University (2019).

Peitzmeier, Sarah, Ivy Gardner, Jamie Weinand, Alexandra Corbet, and Kimberlynn Acevedo. "Health Impact of Chest Binding among Transgender Adults: A Community-Engaged, Cross-Sectional Study." *Culture, Health & Sexuality* 19/1 (2017): 64–75.

Sood, Rachita, M.D., M.P.H., et al. "Association of Chest Dysphoria with Anxiety and Depression in Transmasculine and Nonbinary Adolescents Seeking Gender Affirming Care." *Journal of Adolescent Health*, 68/6 (April 2021). 1135-1141.

# Getting Personal

## [An Interview with Fernando Zimmermann](#)

To learn more about our cross-disciplinary interests, InFormant editors will be interviewing various PAVA members so we can all learn a little more about the diverse fascinations housed in our organization. In June 2022, Paul Patinka had the honor of interviewing Fernando Zimmermann who runs the Full Voice Institute in Brazil.

A full transcript can be found [here](#):

1) Can you tell us a little about some projects you are currently working on or recently finished?

I am a singing teacher. I'm a singer. Professional singer. For 22 years now and counting. I'm a singing teacher too. I run a company, which is the Full Voice Institute. We have a singing teaching method and we have already provided teacher training for about 1500 singing teachers through the Internet in open training, closed training and all of that. And I'm currently in a master's program in the Voice Study Centre from England and University of Wales Trinity Saint David. And this masters is in voice pedagogy.

2) What about vocalization fascinates or inspires you the most?

A lot of things have inspired me and fascinated me in the past. Just like vocal physiology. When I discovered vocal physiology, I noticed, hey, this is awesome to understand how things work. But since I am a very practical guy, the thing that most fascinates me right now, all the cognitive things are the motor learning stuff and things like that. And I think that this is the topic that most fascinates me about vocalization. So now we are understanding not only the what but the how, just like Lynn Holding mentioned in her musician's mind book and that stuff about creating desirable difficulties. I think that this is the center point of the craft of being a singing teacher. How can I measure the level of the singer that I am right now from a motor learning perspective? How can I create the desirable difficulty to improve his current level? And I think that this is the most fascinating thing that I am fascinated about now.

3) What excites you about being a member of PAVA? How does PAVA fit into your overall career trajectory or goals?

I think the first thing that I can refer to is the people from PAVA. I am that guy that always understood that I grow with discomfort and that through discomfort, we as human beings, we all can grow in anything and we improve our knowledge, our wisdom, everything. It is. It is a place where, when I participated in the 2020 symposium I became very uncomfortable. You know but in a very positive way. I have mentioned to my wife at that time, hey, I have found a place that has challenged me and in a good sense because it has challenged me to grow. It is challenging me to become a better professional because things are amazing. And why I didn't feel uncomfortable, not fully uncomfortable. But personally I felt so much embraced.

4) Do you have a mentor in your field whose work you look up to? Who is it and why?

If you consider that mentors can be that some people can be our mentors in an indirect way, just like through books and through things like that. I will mention for sure Lynn Holding, Scott McCoy, people who I didn't reach yet personally. Ingo, Kittie Verdolini people like those that produce knowledge, but personally and directly. I have a mentor who is my tutor in my master's program. Her name is Kate Cublely, and she's helping me a lot through this academic journey, which is pretty challenging to me.

5) If you had unlimited resources and a year of vacation, what is something fun you would like to do with that time?

I think that I would for sure, I will study some programs just like the ecology program, just like the in-person program, you know, vocology program, the CVT program with the complete vocal technique from Denmark. I will study there, but I will. I surely would also travel around the world searching for cultures and different types of singing in it, and producing content and knowledge about how people that have no clue about voice science, that have no clue about voice pedagogy, how they pass, the knowledge about singing.