

Impact of hypermobility on the voice

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INTRODUCTION

People with hypermobility experience movement or mobility beyond the normal range that is common in the general population (e.g., hypermobile joints move beyond the normal or expected range for that joint) (Perretto and Pereira, 2021, p.1). Most infants and children are naturally very mobile. In many people, mobility decreases with age, but in some, up to about 20% of people, hypermobility persists into adulthood. In most cases, being "flexible" or 'double-jointed' is not a problem, and for some, such as dancers, gymnasts or musicians, it can even be an advantage. We refer to benign hypermobility as asymptomatic and does not require treatment (The Ehlers-Danlos Society, 2024).

A smaller number of people experience symptomatic hypermobility, which can affect physical or mental functions (HMSA, 2024). When hypermobile joints become unstable (the bones of a joint are no longer held securely in place), this can lead to joint subluxations, sprains and dislocations, and the instability can cause acute and chronic pain (The Ehlers-Danlos Society, 2024). Joint hypermobility and/or instability may be due to:

- Specific heritable connective tissue disorders (HCTD) such as Marfan syndrome, Down syndrome, Hypermobility Spectrum Disorder and various types of Ehlers-Danlos syndrome, that affect the cellular structures of ligaments, tendons, and tissues (Jeffery et al., 2021, p.1).
- Form of the joints, lax ligaments, or poor muscle tone (without a connective tissue disorder).
- Injury or recurrent exercise/stretching.

Common symptoms can include musculoskeletal pain, dislocations, strains, fatigue, gastrointestinal issues, acid reflux and poor proprioception. Symptoms differ a great deal among individuals and fluctuate over the long run for every person. After something changes that shifts the hypermobile body from 'can cope' to 'can't cope', hypermobility frequently becomes symptomatic. This can be brought on by a variety of things, such as an injury, illness, stress, pregnancy, or shifts in one's work, home, or activity levels (HMSA, 2024).

Research suggests that people with hypermobile joints may have a weakness in collagen (Versus Arthritis, 2024) - the most abundant protein in our bodies. It is the main building block of skin, muscles, bones, tendons and ligaments (Cleveland Clinic). Collagen is like a glue that holds our entire body together. If it is faulty, it can cause ligaments to be weak or stretched so that they don't hold our joints as well (Versus Arthritis, 2024). According to Jeffery et al. (2021, p.1), *'a HCTD can potentially affect any joint and collagen-based tissue in the body, including those of the vocal tract'*.

The aim of my research was to determine the awareness and prevalence of hypermobility in singing teachers and their students and its effects on their voices, to find out what teachers' experiences with hypermobile singers are and which pedagogical methods they use to support them. This was done utilising a survey that was only accessible to singing teachers.

Based on the information gathered in the survey, a practical support strategy was devised and implemented which will be presented in the case study.

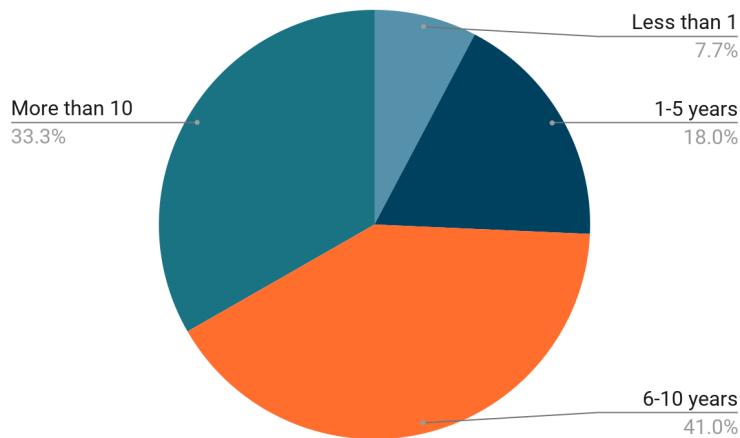
Being hypermobile myself and working as a singing teacher, the motivation for choosing this topic was my desire to learn more about how hypermobility affects the voice - so that I can better manage my vocal problems and offer better support to hypermobile singers.

Survey results and analysis

In the first part of the survey, 39 participants were asked about their knowledge of the effects of hypermobility on the voice and their experiences with hypermobile students. The second part of the survey had 23 participants and could only be done by singing teachers who are themselves hypermobile. They were asked about their vocal health and function, the experiences they have when singing, their hypermobility-related symptoms and how they deal with them.

1. Experience

A breakdown of the 39 participants' experience as singing teachers is shown in the following chart:

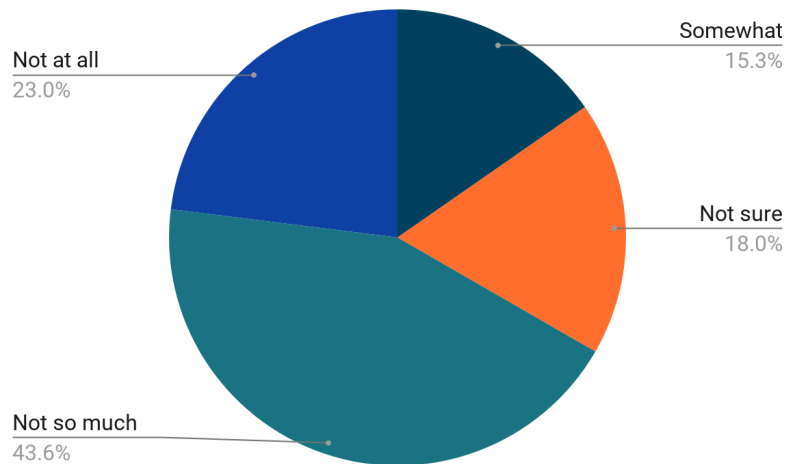


- 58% are familiar with Hypermobility Spectrum Disorders (HSD), 73% of those who are familiar with it know how HSD can affect vocal production and 72% have encountered students with hypermobility in their teaching practice. The prevalence of students in their teaching practice who exhibit hypermobility is around 5-10%.
- Almost all teachers consider the presence of HSD when working with singers with hypermobility (90%).
- 60% of students who exhibit hypermobility are aware that they are hypermobile and 38.8% of those who know that they are hypermobile are aware that hypermobility can affect the voice.

It is possible, that those who are familiar with HSD are more likely to have participated in the survey than those who are not. I suspect the percentage would be lower with a larger sample size.

2. Awareness

All 39 participants answered if they believe that the teaching community is aware of hypermobility and the implications it has on the voice (shown in the following chart):



Out of 37 responses, 89.2% answered positively if they believed that the teaching community would benefit if there was more awareness being raised about hypermobility while the remainder answered: 'maybe'.

These responses show a significant consensus that hypermobility should be recognized because it is not well known in the teaching community, even though hypermobile singers are common.

3. Impact on the voice:

Participants were questioned about how, in their opinion, hypermobility generally affects their own and their students' voices (see Appendix B), and about the perceived challenges and strengths that singers with hypermobility tend to exhibit. Verbatim quotes are italicised, followed by years of Teaching Experience (TE) when teachers talk about their students' voices. When they refer to themselves, the TE is omitted and their gender and age are given.

The 'advantages' of a hypermobile singer are described as having an extended vocal range (sometimes with easy access to whistle register), flexibility to perform 'riffs and runs' with ease and stylistic versatility. Some describe singers as having 'big' or 'powerful' voices (which could be beneficial for some styles).

On the other hand, these big and flexible voices seem to be harder to control:

Managing all the moving parts of the voice seems to be even harder in hypermobile students (TE 1-5)

Some point out the seemingly contradictory behaviour of singers' voices:

Either extremely easy in changing vocal quality through your range or the extreme opposite (TE >10)

The obvious theme in the description of difficulties seems to be the unstable, unreliable and inconsistent nature of vocal production. In the majority of cases, this is coupled with a feeling of tension in various parts of the singer's body (particularly in the neck and surrounding areas, shoulders, jaw and abdominal muscles) and difficulty maintaining postural alignment (which is often tied with breathing problems), as well as a feeling of excessive laryngeal muscle tension and tongue tension. These issues usually lead to unpredictable and undesirable changes in voice quality:

I am always very tense, especially in my neck and jaw. Some repetitive exercises can make my jaw hurt (Female, 25)

I sometimes feel instability or more tension than necessary, my voice is very happy to flip and crack everywhere (Female, 33)

[I'm] often managing hoarseness when doing focused work on the voice, gripping with extrinsic muscles, holding tension in abdominals, difficulty breathing adequately (Female 28)

Vocal problems can be linked with musculoskeletal issues. Since singing involves the whole body, it can place high demands on various muscles and joints, which can in hypermobile conditions be affected by ligamentous laxity. This may lead to joint instability, muscular imbalance and undue tension. Problems might get worse if susceptible joints are overused and overstretched often. Having an extremely flexible and wide voice potentially raises the chances of developing a vocal injury. A recent study suggests that the occurrence of voice difficulties in hypermobile singers is higher than in non-hypermobile singers. (Jeffery et al., 2021, p.10)

Another common issue is problems with pitch control, as well as vocal fatigue:

Mild pitchiness, tiring out relatively quickly even with techniques that work very well for most students (Male, 25)

Excessive use of the TA [Thyroarytenoid muscle], a lot of muscle tension, high-pitched shouting, constant problems with tuning (Female 25)

Another common theme is poor proprioception (the sense of self-movement, force, and body position), recognizing they are overly tensing muscles may be harder:

I wonder if decreased proprioception makes it harder to know how to produce sound with appropriate resistance consistently (TE 1-5)

They [the students] tend to find it harder to replicate vocal gestures in identical ways (TE 6-10)

When speaking about inconsistencies in vocal function, performance anxiety and stress appear to be related to the singers' concerns about these inconsistencies. Other mental health problems such as depression and neurodivergent disorders (particularly autism, Attention-Deficit/Hyperactivity Disorder and bipolar disorder) are also present:

I have had depression in the past but I don't feel it has affected my voice or vocal learning much. What does constantly affect me is my ADHD because I can lose concentration very easily in class, I can become overstimulated and need a break or I can become obsessed with a song or an exercise and do it for hours or days (running the risk of injury) because I want it to come out on repeat. I may also arrive late to class or very early, or I am not in good physical condition because I have forgotten to eat or drink water all day (dehydration) (Female, 25)

It is not yet entirely clear how hypermobility relates to these conditions. (HMSA, 2024)

4. Pedagogy, Vocal health & Injury prevention:

In this section, teachers were asked how they adapt their teaching methods or vocal exercises to accommodate students with hypermobility and address their specific challenges, how they address vocal health and injury prevention in singers with hypermobility, and how teaching students with hypermobility has influenced their overall teaching experience.

Most agree that this is a difficult subject and some do not always know what to do or feel that they do not have the right knowledge and tools to help their students:

This is such a complicated area. I have two extremely different students and one is extremely capable and practices a lot. The other has many other issues so HSD is only one factor (TE >10)

The majority of responses acknowledge that no two students are likely to have the same symptoms and therefore a person-centred approach and tailored support are required:

Adopting a holistic approach that adapts to the student's needs each day depending on physical/mental fatigue (TE 1-5)

In supporting the singers' needs, three different themes can be identified. One is about reducing excessive tension, another is about activating the body through movement and the third is about the importance of sensory perception (especially proprioceptive and auditory):

Sensory awareness, physical aids like resistance bands, balance exercises, movement, deep practice on isolated groups of muscles, articulators and such (getting rid of compensations) (TE >10)

The use of postures and balance along with singing exercises, to accommodate antigravity muscles to help with phonation (TE >10)

Individual patterns of movement that are appropriate for each singer. I am qualified in vocal massage and find this a helpful tool with the sessions (TE >10)

I encourage good postural and vocal awareness and address any tension (TE >10)

I faithfully believe in relaxation techniques depending on the student, some are favoured by more mental and slow-time relaxation, just as others are favoured by relaxation even with the most active physical work before the singing session so that the body is in a more relaxed state. Pilates, yoga or even dancing during many of the exercises have benefited many of these students in my classes (TE >10)

Specific associations between posture and voice were found: *'Postural imbalances in the head and neck can lead to changes in the soft tissue of the pharynx and muscles that raise the larynx - this affects vocal control and resonance' (Physiopedia, 2024)*

Regarding specific vocal techniques, semi-occluded vocal tract exercises and resonance training are mentioned:

Working on force and resistance is a must in all of the cases I've encountered... Also, working on resonance strategies to elevate sonority perception, as often these singers cannot build up pressure for high intensity as well (TE >10)

The need for good vocal hygiene is emphasised - hydration, nutrition, sleep, rest, warm-ups & cool-downs all of which should be taken into account:

I sleep my hours, I do vocal rest, I don't smoke, I use lax vox when necessary or in the mornings, I do daily physical and vocal warm-up, I take classes to

continue training, I eat a healthy diet (FODMAP diet), maxillofacial massages every 15 days. I try to relax (it's quite difficult for me) and control external stress (Female, 46)

Communication with the student is also very important:

We [teacher and student] discuss the potential concerns and work together to establish a safe technique. We also work to develop awareness around what is or isn't helpful when practising to help them identify vocal health concerns in their daily practice (TE >10)

I frequently ask [the student] whether the vocalization we do feels comfortable, and suggest adjustments if I believe something's off (TE 1-5)

Referral to a specialist such as an osteopath, speech therapist, laryngologist or physiotherapist may also be necessary and should be considered.

Physiotherapy and strength training are crucial components of care for people with hypermobile disorders and teachers and their students should be informed of their importance. (Jeffery et al., 2021er, p.12)

A minority of teachers stated that working with hypermobile singers had no impact on their teaching practice, one teacher even said that it had had a negative impact on her:

Makes me concerned as I do not want to damage anybody (TE 1-5)

However, most of them feel that it has improved their practice by increasing their awareness and consideration of singers' individual differences, and some say that they are now able to be more flexible with the lesson structure rather than following a rigid lesson plan. It also makes them want to learn and research more about the subject, and it has given them ideas for working with non-hypermobile students who have similar problems

It's made me pay attention to the minutiae in the process of working with the voice, which seems to be more intricate and temperamental with hypermobile singers (TE 1-5)

I have no words for how much time I spent solving the problem that seemed to be unsolved. First of all, I started considering if the student is hypermobile. I broaden my knowledge in the context of genetics, physiotherapy, anatomy, releasing the tension etc. (TE >10)

Case study

The participant of this study was a 24-year-old female diagnosed with HSD, who had been studying with me for 3 months at the start of the sessions. Vocally, she exhibits uncontrollable flipping from chest to head voice, often even when speaking. She reported having severe anxiety in her daily life which frequently manifests in neck and shoulder tension, and seldomly in jaw tension as well. Her anxiety is sometimes exacerbated during our lessons.

Based on the survey responses and considering my student's symptoms, I devised two distinct support strategies - both utilised phonating a 5-tone major scale ascending to a perfect 5th and descending back down using the sound [a], starting on A3 and moving up by one semitone until the highest starting point was D4. A base 5-tone was established and recorded (for my reference) during each session.

Support strategies used:

1. Manual therapy movements (MTM) - release excessive tension.
 2. Movement exercises with resistance bands (MER) - provide additional stability to the body by engaging different muscles
- Every 5-tone done during a movement exercise or after a manual therapy movement was compared to the base using 2 criteria:
 1. The sound quality (SQ), which was graded by me
 2. The ease of phonation (EP), which was graded by the student

- Every 5-tone done after a movement exercise was compared to the previous 5-tone to see if any improvement ‘carried over’

The following scores were used to grade both criteria:

1=significantly worse than base	2=slightly worse than base	3=same as base	4=slightly better than base	5=significantly better than base
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Each strategy was implemented in a separate session. Scores are shown in the following table:

MER (Appendix B)	EP (during)	EP (after)	SQ (during)	SQ (after)
1. Standing core twist	4	3	4	3
2. Bicep curl	5	3	5	2
3. Shoulder stretch	2	4	4	2
4. Cross-body reach	3	3	4	2
5. Upright rows	3	3	4	3
6. Tricep extension	3	2	4	2
7. Squats	5	3	5	3
8. Lunge	4	3	4	3
9. Row using door	3	2	4	2
Average score	3.5	2.9	4.2	2.4
MTM (Appendix C)				
1. Candy cane	/	3	/	3
2. Cross Fiber Friction of the Temporalis Muscle	/	3	/	3
3. Myofascial Hug	/	3	/	4
4. Manual Circumlaryngeal Massage	/	2	/	3
5. Pin and Stretch	/	3	/	3
6. Prayers Hands	/	4	/	4

7. Trigger Pointing the SCM	/	5	/	4
8. Sternum and Posterior Cervical Hold	/	3	/	4
9. Transverse Processes of the Cervical Spine	/	5	/	5
Average score	/	3.4	/	3.7

Findings:

- The ease of phonation during MER almost fully carried over into the 5-tone after and was better than the base.
- The sound quality during MER did not fully carry over into the 5-tone after and was better than the base
- The average score of all MER (during) is higher than EP.
- The average score of all MER (after) is lower than EP.
- The average scores of EP and SQ after MTM were higher than the base with SQ being slightly higher than EP.
- When comparing the average score of MER (during) and MTM (after) for both criteria, MER (during) scores higher.

Although MER (during) scored only marginally better than MTM (after) in EP, the student reported that she found MER to be more beneficial, since it reduced her anxiety more than MTM. She felt as though she had ‘released’ the tension from her body, whereas MTM just decreased it.

In subsequent sessions, various other modalities were explored. The ones that had similar benefits as MER were:

- Static holds on the floor (e.g. dead bug) - vocalise during
- Standing cardio (e.g. jumping jacks) - vocalise after
- Balance exercises (e.g. standing on a balance board) - vocalise during

One thing should be noted regarding manual therapy movements. There is a concern in the manual therapy community about laryngeal massage for a person with hypermobility of the larynx since there is a possibility of a subluxation occurring.

I've asked Robert Price - an advanced clinical massage therapist who specialises in working with voices whether he would advise against it:

'No I wouldn't advise against [it] because we work in a person-centred way - so we're always looking to establish what's safe - I am aware of working differently with hypermobile folk but only in the sense that I'm even more careful in contracting and checking in.'

CONCLUSION

It could be argued, that hypermobility might provide singers with benefits one would call - 'natural talent'. Therefore, it shouldn't be surprising that hypermobile singers are quite common in vocal studios. It also shouldn't be surprising, that their condition could become a liability since they are at a greater risk of developing vocal issues. Therefore, it could be debated, whether an unknowledgeable teacher could do more harm than good. If that is the case, I believe it is of utmost importance that the teaching community should seek ways to raise awareness about this matter. While some teachers acknowledge hypermobility, are aware of its potential implications on the voice, are educating themselves on the topic and have the tools to support hypermobile singers, they are probably the minority. There are no firm pedagogical guidelines on how support for hypermobile singers should be addressed since very little research has been done in that regard and further studies are needed. However, as I have shown in my case study, I believe that a holistic and person-centred approach should play an integral part. Movement exercises and manual therapy seem beneficial and are highly recommended.

The following survey response gives the best summary of a pedagogical mindset one should have:

Take the time to investigate the condition and plan carefully the steps of intervention and guidance. The data is there, not specifically related to voice in most cases, but related to the condition. Adjustments are possible in the short term to have good results in the long term. Don't be anxious about results. Each student will be different. No formula there. (TE >10)

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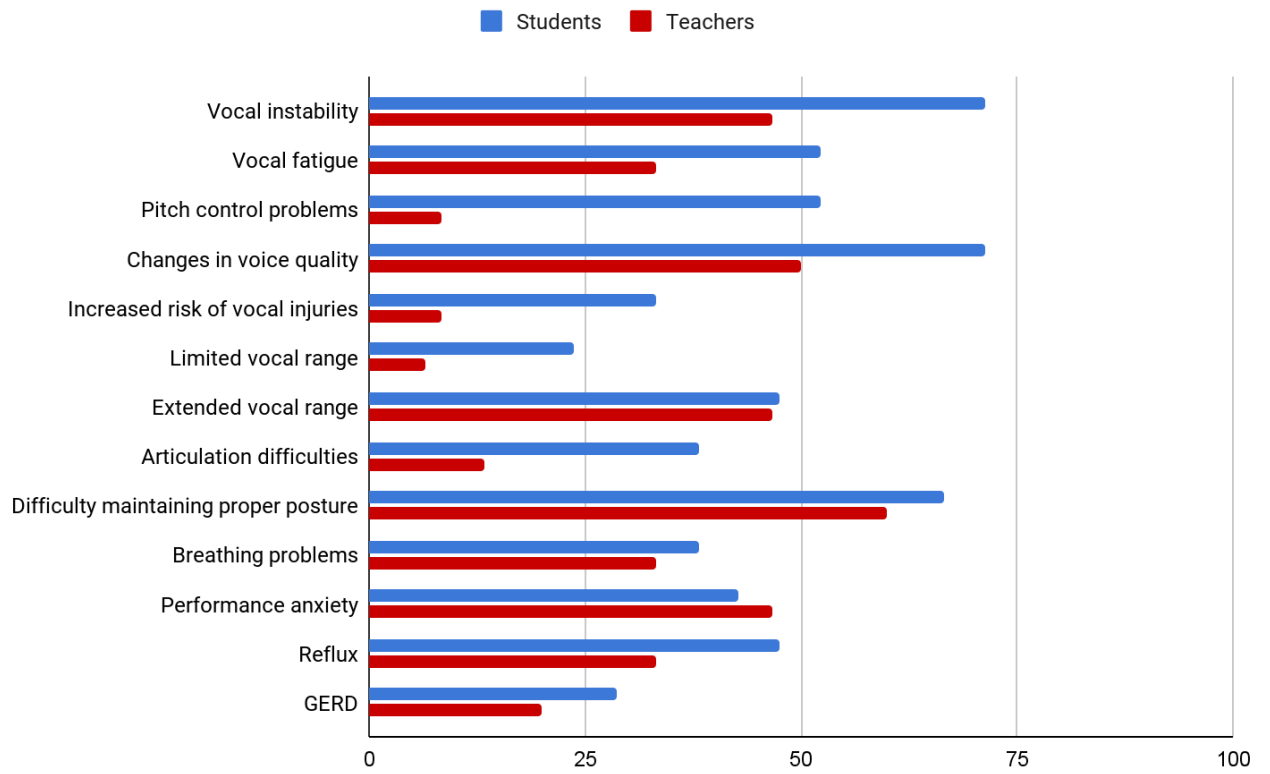
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APPENDIX A

How does hypermobility impact your voice?



APPENDIX B

RESISTANCE BANDS

Workout Guide

Go To www.athleticsofficial.com

WANT THIS ON YOUR PHONE?

1 Standing Core Twists

2 Bicep Curls

3 Shoulder Stretch

4 Cross Body Reach

5 Upright Rows







6 Tricep Extensions

7 Squats

8 Lunge

9 Row Using Door

APPENDIX C

<p>1. Candy cane</p>	<p>2. Cross Fiber Friction of the Temporalis Muscle</p>	<p>3. Myofascial Hug</p>
		
<p>4. Manual Circumlaryngeal Massage</p>	<p>5. Pin and Stretch</p>	<p>6. Prayers Hands</p>
		
<p>7. Trigger Pointing the SCM</p>	<p>8. Sternum and Posterior Cervical Hold</p>	<p>9. Transverse Processes of the Cervical Spine</p>
