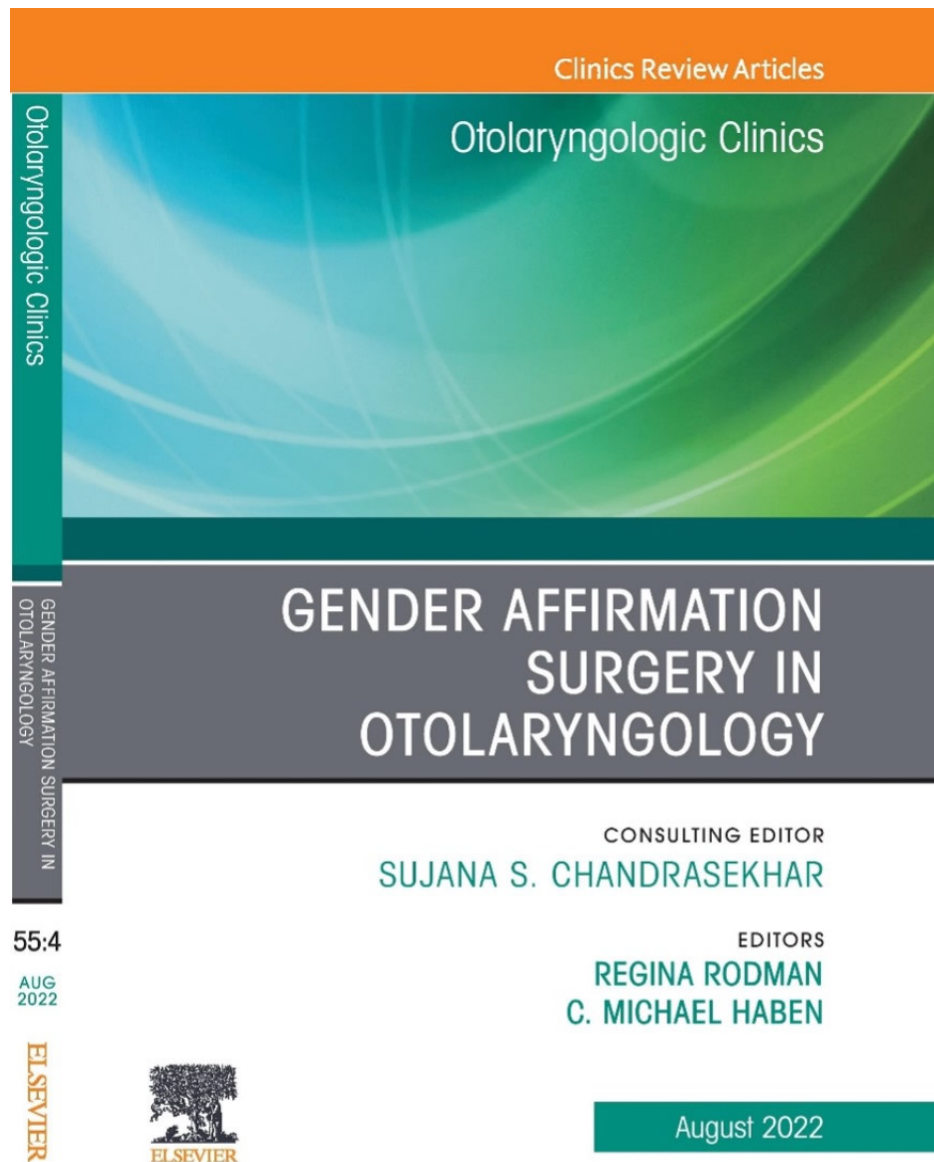


# Voice Masculinization

Dr. Haben aims to create a voice for you that:

**sounds natural**  
**more commanding**  
**avoids being misgendered**



**August 2022, Dr. Haben co-edited the definitive guide to Gender**

# Affirmation Surgery of the voice, face and neck, in addition to authoring two of the chapters. The chapters are here available for download:

**Masculinization Laryngoplasty**

C. Michael Habert, MD, FRCO

**KEYWORDS**

- Voice • Speech • Male • Masculine • Transgender • Testosterone

**KEY POINTS**

- Up to 20% of transgender males on testosterone therapy fail to achieve a voice that is sufficiently masculine even after sufficient speech therapy.
- Masculinization laryngoplasty is an effective procedure to reduce pitch.
- Pitch reduction laryngeal framework surgery is also useful in non-transgendered patients with high-pitched voice disorders.

**CLINICAL RELEVANCE**

There exist several clinical situations where the speaking fundamental frequency of an individual is higher than expected or desired. These high-pitched voice disorders may be caused by intrinsic vocal fold issues such as scarring and atrophy or developmental issues including the larynx and subglottal larynx (subglottophony). Over the last couple of decades, there has been a shift in the percentage of patients who present with a voice that is too high to align with their perceived, desired, or affirmed identity despite having a voice and speaking frequency that would otherwise be appropriate for their birth gender. Female-to-male transgendered persons make up the bulk of this population, however, certain cisgendered men as well as persons identifying as nonbinary, inter-gendered, "both/neither" women, and "gay" men are presenting with dysphonia secondary to voice characteristics that are not congruent with their identity perception, prompting them to seek out a more masculine voice.

**INTRODUCTION**

Voice has been identified as one of the most overt demographic traits playing a leading role in both perceived and attributed gender identity. In the transgendered male population, a masculine voice has been noted as one of the traits patients who were least satisfied with before initiation of masculinizing-gender-affirming hormone therapy (M-

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**Gender-Affirming Hormone Therapy**

**What the Head and Neck Surgeon Should Know**

C. Michael Habert, MD, FRCO

**KEYWORDS**

- Transgender • Nonbinary • Hormone • Feminization • Masculinization • Estrogen • Testosterone

**KEY POINTS**

- Gender-affirming hormone therapy is present nearly universally in the transgender population.
- Understanding of the effects, expectations, limitations, and risks of hormone therapy is vital to optimal care of this population.
- Preoperative management of hormone therapy is an important aspect of surgical planning.

**INTRODUCTION**

Up to 3% of the US population identifies as transgender/gender incongruent, nonbinary, or "other."<sup>1</sup> Transgender is defined as having a binary gender identity or expression that is the opposite from the one assigned at birth. In contrast, cis-gender is defined as having the same binary gender or expression that is assigned at birth. There is a growing number of individuals who do not ascribe to a binary gender classification and consider themselves as nonbinary, a gender, gender neutral, gender blend, third gender, or androgynous. In 2016, New York City identified 31 different, officially recognized gender classifications.<sup>2</sup> Although feminizing or masculinizing gender-affirming hormone therapy (F-GAHT and M-GAHT) has historically been considered for those individuals who are transgender in a binary sense, it is increasingly being used for nonbinary individuals whose identity or expression is more feminine or masculine than the sex assigned at birth without being specifically "male" or "female."

The demographics of this population seem to be changing. In addition to a significant increase in the overall number of individuals self-reporting to this group, the

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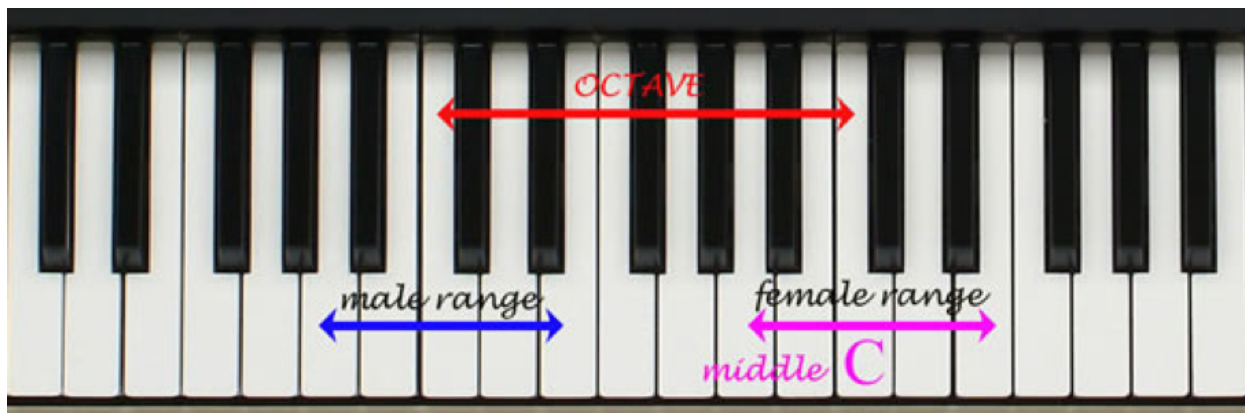
**PLEASE read through EVERYTHING carefully.**

**PITCH LOWERING masculinization voice surgery can be performed on both**

pre or post gender affirmation surgery transgendered clients; cisgendered males and gender-neutral individuals seeking lower pitched voices.

The DEGREE of pitch reduction is finite and largely determined by the size, shape and mass of someone's larynx. We aim to achieve the greatest amount of pitch reduction one's anatomy will allow.

## Range of Male and Female voices



The average cisgendered male speaking fundamental frequency is roughly 120 (B2) hertz with an average between 85 (F2) and 155 (D#3) hertz, or roughly 9 semitones (notes) lower on a piano than a cisgendered female. Pitch reduction is finite in everyone and largely depends on your baseline unplaced pitch, natural lower range and voicebox anatomy.

In transgendered men, pitch can typically be lowered up to 2/3 of an octave or 8 notes (= approximately 60-75 hertz  $\hat{\pm}$ 25-40 hertz) on average and in many cases. Not all clients get meaningful pitch reduction while others can achieve a significant amount.

In cisgendered men (and gender-neutral individuals), depending on where your pitch starts out and the extent of your lower vocal range and anatomy, pitch can typically be lowered up to 1/3 of an octave or 4 notes (=approximately 20-25 hertz  $\hat{\pm}$ 5-15 hertz) on average and in many cases. Not all clients get meaningful pitch reduction while others can achieve a significant amount.

Â Please see below for more information regarding the metrics of success and guarantees. A thorough in-person, pre-operative evaluation will help predict the degree the pitch could be reduced under ideal conditions.

## Surgery

If you look on the inside of a piano, the lower notes have strings that are thicker, longer and less tension. Human vocal cords vibrate in much the same way. The goal of masculinization voice surgery is to make the vocal cords act thicker, longer and less tense to vibrate at a slower frequency which equates to a lower pitch. To achieve this, voice masculinization surgery requires a transcervical ("incision in a neck crease") approach and takes about 2-2.5 hours in the operating room under sedation anesthesia. Endoscopic-only surgery is not effective.

## Questionnaire

Please fill out the medical and voice questionnaire E-MAIL at the top of the page AFTER having read through all of the important information here. Please specify if you are cisgendered or transgendered male, Â are or ever were a smoker, have a chronic medical condition such as diabetes, take blood thinners, or ever had surgery on your vocal cords (for any reason).

## Examples

The following examples represent AVERAGE results that a TYPICAL transgendered man undergoing voice masculinization could achieve. These examples aim to provide potential clients with realistic, achievable and reasonable expectations in most cases. In each example the client is first reading the "rainbow passage" (pre-operative) and then re-reading the same passage at least 3 months post-operative. Final results can never be

guaranteed.Â PLEASE NOTE that we do NOT use our patients for advertising as is commonly done in other countries.Â We post a reasonable number of average outcomes rather than the best-of-the-best results advertised elsewhere.

EXAMPLE

EXAMPLE

EXAMPLE

EXAMPLE

## Cost

### PLEASE NOTE:

The following information is valid ONLY for masculinization procedures COMPLETED before 31 May 2023. Costs are anticipated to increase afterwards.

All masculinization voice surgeries are considered elective cosmetic procedures, and, as such, are not covered by any private or government insurance in our practice. Unfortunately, we do not participate in Care Credit or have payment plans available.

Each of the procedures come packaged to include the cost of the surgery; pre-operative consultations and all post-operative visits; ALL hospital charges for outpatient surgery including associated anesthesia fees. Post-operative medications are not included; however, private insurance frequently covers this modest expense. Hospital discounted rates for hotel lodging at the Marriott are available to clients upon request (please contact the office for additional information). Travel, lodging, airport/ hospital/ clinic transfers;

meals; entertainment; special testing, post-operative medications and overnight in-patient hospital observation (if necessary) are not included in the package. Overnight hospital observation is mandatory for those travelling without a chaperone.

**PLEASE read the sections on REFUNDS, GUARANTEES and REVISIONS carefully.**

The current package for masculinization voice surgery is currently \$8,080. Prices are expected to increase for surgery dates after 31 May 2023. The hospital requires payment of a \$3,000 credit card deposit to secure a confirmed surgery date. The deposit includes a non-refundable \$500 cancelation fee (see below regarding refunds). Deposits made by personal checks drawn on a US bank could require a 20 business day holding period before the surgery date can be assigned.

NOTE: Additional cost for overnight hospital observation for clients without a chaperone is currently approximately +\$1,105.

## **COVID-19**

**What are the current COVID-19 protocols? Am I required to be vaccinated?**

A; Currently, all clients are required by the State of NY Department of Health to arrive on the Sunday before their procedure to undergo a COVID-19 nasaopharyngeal test. IF this test is POSITIVE your case will be rescheduled for at least 3 months. You can NOT be re-tested "in a few days." These are State of NY guidelines and can NOT be overruled for any reason, even if you are vaccinated. Additionally, the State of NY does NOT accept results from labs or hospitals outside of NY State. We STRONGLY recommend all clients to be fully vaccinated at least 4 weeks prior to their arrival, however, vaccination is not a pre-requisite for surgery. If you are fully vaccinated, we strongly

suggest arriving with proof of vaccination. These guidelines are changing regularly. Please contact our office or the NY State Department of Health for the most up-to-date information.

## Refunds

### **What is the policy regarding refunds? Can surgery be rescheduled?**

A: We understand emergencies occur. We are happy to reschedule your surgery at no additional cost. If you need to reschedule for the next calendar year, you would be subject to any cost increase imposed by the hospital. If the rescheduled date falls within the same calendar year as the original, no cost increase will occur. If you decide to cancel your surgery altogether you will be assessed a non-refundable \$500 fee to cover the expenses in setting up your surgery, even if an in-person consultation has not yet been done. Refunds take 10 business days to complete and only the original credit card can be used to process the credit.

### **What if my case is cancelled/postponed for a medical reason?**

A: It is very important that you disclose any medical condition well before surgery. Should you develop a cough, cold, flu, illness (including COVID-19) or breathing problem the week before surgery you must call the office at once. Your surgery will likely be rescheduled at no additional cost. Rarely, clients are not cleared for surgery due to an undisclosed medical condition after they have travelled to New York and are awaiting their procedure. Your surgery will be postponed until the medical condition has been evaluated/ corrected and your procedure will be rescheduled for the first available date. There may be hospital costs if additional testing is required. No reimbursement is possible for the transportation and lodging expenses incurred.

### **What if I miss my pre-operative consultation the day before surgery?**

A: The pre-op consultation on the day or two before surgery is mandatory even if you have had a prior in-person consultation. If you miss this appointment your surgery will be rescheduled even if it was missed due to travel delays / bad weather or circumstances beyond your control. We recommend anyone travelling during the winter months, having a connecting flight, or coming internationally arrive a day early.

## Guarantees

**Are my results or degree of pitch reduction guaranteed? Am I paying for a surgery or a specific result?**

A: You are paying for a surgical procedure which has inherent risks, including that of non-healing, surgical failure and suboptimal results. The degree of pitch reduction is finite and largely determined by the size, shape, age, condition and mass of your larynx. As such, there can be no outcome guarantees, implied or expressed except that Dr. Haben will use all his experience and expertise for every client.

## Revisions

**Can the surgery be revised if I wish for more pitch reduction? Is there a cost?**

A: It is unusual for voice masculinization surgery to require revision at our practice. Unfortunately, the pitch is usually lowered to the greatest amount allowed by one's anatomy and meaningful additional pitch reduction is not physically possible (unless the previous surgery was done elsewhere). Rarely, this is not the case and revision surgery could be considered. As with procedures paid for by private or government insurance, revision surgery will incur a charge, although Dr. Haben will petition for the greatest amount of cost



reduction permissible by the hospital.

## **FAQ**

### **What if I would like to come in just for a consultation?**

A: Consultations are one hour and include voice analysis, physical examination, a scope of the voicebox and a lengthy discussion regarding expectations. The charge of \$500 will be applied towards the cost of the surgery package.

### **Can't I just send you a voice recording?**

A: Voice analysis is only a small part of determining whether a client is a good candidate for voice surgery and cannot replace an in-person consultation. There is no ability to do a scope to examine the voicebox virtually.

### **Where is the incision?**

A: The incision is made in a skin crease in the middle of the neck. The incision is hidden as best as possible in a skin crease and closed using plastic surgery technique. Prior incisions cannot usually be used.

### **Can you create or augment the Adam's Apple?**

A: Yes, although the masculinization procedure is intended to be functional, a surgical implant to increase the projection of the Adam's Apple may be done if desired. The additional cost is available upon request.

### **Can I get a letter of support for name/gender change legal petitions?**

A: Absolutely, once you are at least 3 months post-operative voice masculinization.

# General

## **How many surgeries does the Center perform? Is the surgeon Board Certified? Fellowship trained?**

A: The Center is dedicated to laryngeal (voicebox) surgery. Dr. Haben has performed hundreds of pitch alteration surgeries and thousands of voice surgeries. The different techniques involved in masculinization voice surgery have been developed by Dr. Haben and continue to be perfected at the practice over the last 15 years. Dr. Haben is Board Certified in Otolaryngology and Fellowship trained in laryngology and voice surgery, as well as earning a Master's Degree for his research in voice and laryngology. Dr. Haben routinely lectures and publishes on voice surgery and related topics.

## **Why is a chaperone needed after the surgery? What if I do not have one?**

A: It is mandatory hospital, State and Federal guidelines that any patient undergoing general anesthesia MUST have a responsible adult with them for 24 hours after surgery. An acceptable chaperone must be 18 years or older and known to the client for at least one year. It is UNACCEPTABLE to "meet" a chaperone while in Rochester, "bunk" with another client having surgery the same day, or "hire" someone to stay with you. If you are not accompanied by an acceptable chaperone, you will be required to spend the night in the hospital. There is currently an additional cost of \$1,105.

## **Do you accept Care Credit? How much is required to confirm a surgery date? What payments are accepted? What happens if I need to change the surgery date at the last minute? How far in advance do you book?**

A: The practice does not accept Care Credit. Credit cards are the preferred method of payment. Surgery may only be booked and confirmed once the listed deposit is made. Personal checks are accepted ONLY from US clients

with checks drawn from a US bank and surgery dates are not confirmed until the check clears, typically 10-20 business days depending on the origin of the check. Changes are permitted without penalty, as long as the policy is not repetitively abused. Most non-peak surgery dates book 2-3 months in advance.

**Do you accept Medicare or private insurance for masculinization? Do I get any forms that can be submitted to my insurance? Or to my accountant for taxes? Is there a procedure (CPT) code for the surgery?**

A: Masculinization voice surgery is an elective cosmetic procedure. We neither accept Government nor private insurance for the procedure. We are not permitted to submit any forms to government or private insurance. A receipt of payment is provided; however, we are not responsible for insurance reimbursement, tax rebates or credits. Receipts can NOT be altered, modified or amended under any circumstance to meet any requested criteria. The procedure (CPT) code used for masculinization laryngoplasty is 31599.

**All your surgery dates are on Wednesdays. Do you operate any other day?**

A: No. All surgeries occur on a Wednesday and the practice cannot accommodate special requests.

**How will we communicate?**

A: It is vitally important that we have an accurate e-mail, telephone number and current mailing address. ALL confirmations and instructions occur via e-mail and it will be your responsibility to check your e-mail often as your surgery date approaches.

## **Travel**

## **Can I book my travel first and then call for a surgery date?**

A: No. Surgery dates are not confirmed until the deposit is paid. We cannot "hold" a date without payment and strongly advise against booking travel until you receive confirmation of your surgery date by e-mail.

## **I am coming internationally. Does this change anything?**

A: International clients, except those from Canada, are required to stay an additional 7 days post-operatively before being cleared to return home. Clients from Alaska and Hawaii are considered "international" in this case due to the distance of air travel.

## **When should I arrive?**

A: See above regarding current COVID-19.

## **Any other advice for foreign travelers?**

A: We recommend informing your credit card company of your travels and having a back-up just in case.

# **Medical Questions**

**Is there pre-operative testing required? I have heard that some surgeons require a CT scan before to prevent damage to the vocal cords.**

A: In general no, unless you have a chronic medical condition, such as diabetes, or a history of heart problems, etcetera. Sometimes medical clearance from your Primary Care Physician is required. If you have a question or concern please contact our office before you make any arrangements. The hospital will make a pre-operative telephone call to you the week before the

surgery and make any necessary testing or clearance recommendations. You **MUST** arrange to be available for the anesthesia call or your surgery could be **CANCELLED**. A CT scan is not required.

### **Should I see my primary care physician first? What if I have a chronic medical condition?**

A: In most cases it is not necessary, however, if you have a chronic medical condition such as asthma or heart problems; have not seen a doctor in many years; are concerned about your ability to undergo general anesthesia or are over age 60 a visit to your PCP is advised.

### **Do you perform the surgery on someone under 18? Older than 60?**

A: Clients under 18 must have parental permission, be accompanied by a parent or legal guardian and have a letter of support from a qualified psychologist or psychiatrist. There is no "maximum age" however, the expectations for achieving a truly masculine sounding voice decreases with age due to reduced plasticity, hardening of the cartilages, stiffening of the vocal cords, and less optimal healing compared to younger individuals. Results, and correspondingly expectations, should be more modest in older individuals. This does not mean that very good results cannot be achieved, just that they are harder to accomplish due to factors that are out of our control. Reasonable expectations will vary from client to client and can only be accurately determined at the time of consultation and examination with voice analysis.

### **I am/was a smoker. Does this matter?**

A: Overall, former smokers heal worse than nonsmokers. Current or recent smokers fare much worse than former smokers. Of course, the amount and duration of smoking matters a lot. We do not test for recent or current smoking,

relying on patients to tell the truth. Failure to disclose prior/ recent/ current smoking status inevitably results in suboptimal outcomes, frustration and disappointment. Current and/ or post-operative smoking (or extensive second-hand smoke exposure) will have a significantly negative impact on success. Former smoking does not automatically prevent successful surgery.

### **I have not yet had gender confirmation surgery (GCS). How did this impact my voice? Is it better to have GCS first?**

A: Following masculinization voice surgery clients are not permitted to have any elective surgery under general anesthesia ("with a breathing tube") for 6 months. Some clients will heal fast enough to reduce this restriction to 3 months; however, they are required to present to the clinic in-person at 3 months for an examination and clearance. If the vocal cords have not fully healed, clearance is not granted. This possibility must be taken into consideration when timing this and other associated surgeries. Pre versus post GCS does not otherwise impact the success of masculinization voice surgery.

## **Operation and Technique**

### **Can you re-use a prior scar? Do you use a "plastic surgery" type closure?**

A: In general, a prior incision cannot be re-used because they are under the chin and too far away. Incisions are as small as reasonably possible without compromising the surgery; are hidden to the greatest extent possible in a skin crease; and are closed using plastic surgery technique.

### **I am a singer. How does this impact things?**

A: Pitch-lowering masculinization voice surgery does not give anyone a singing voice that did not exist before. Nor does it give additional baritone or

bass range. The surgery is intended to lower speaking pitch and not positively impact singing range or capabilities.

### **How long is the surgery? How long am I in the hospital?**

A: 2-2.5 hours in the operating room. Clients arrive 1-1.5 hours before the surgery and leave 2-3 hours afterwards. Plan on 6 hours start to finish.

### **I have changed my mind and want my old voice back, can the procedure be reversed?**

A: No. Just so that we are clear: no.

## **Post-operative**

Once I come out of the operating room how will I sound?

A: You will have a severe "surgical" laryngitis that may last up to four weeks making the voice sound very rough. The final result takes 3 months, when all the swelling and bruising heals.

### **Is there much post-operative pain?**

A: No. Most people state that the pain is tolerable and actually controlled well-enough with ibuprofen + Tylenol at the same time. Having a little more or a little less pain is not a sign of "something wrong" unless the pain is increasing day after day which could indicate an infection. All patients are placed on post operative antibiotics and steroids.

### **Can I use anti-scar cream or patches? What about the stitch removal?**

A: The neck incision is as small as possible, hidden in a skin crease and closed with plastic surgery technique. All but one suture is absorbable. The one (blue)

stitch on the outside is removed on the seventh post-operative day either by myself (whenever possible) or by a medical person in your community. If your local medical professional has any questions regarding removal of the stitch, they are encouraged to call the office. Clients may not remove their own suture. Once the suture is removed, you may start to shower. Pat, do not rub, the incision dry after showering for the first month. If going out doors, use a >30 SPF sunscreen, or cover the incision with a scarf. Anti-scar creams/patches, Vitamin E oils, etcetera, may be used after the first month. Scars typically take 12 months to mature and heal. 12 months. Be patient.

### **Any other advice for the incision/scar?**

A: Yes! After the stitch is removed, take a towel and wet it with water as hot as you can comfortably stand. Hold it over the incision like a compress for 20 minutes, 3-4 times a day until one month. This helps it heal.

### **It is somewhat effortful to produce voice for the first few months even though it sounds great. Why?**

A: Your larynx has been tuned to a much lower frequency. As such, you will now have to learn to "play" a cello, when you were used to playing a violin. The effortful feeling goes away after about 12 months.

### **How many times am I seen post-operatively? Can I get voice analysis of the final product?**

A: All clients are seen the day after surgery and cleared for travel. International clients are seen on the first and seventh post-operative days before being cleared for travel. All clients are recommended to return at 3 months for an examination and voice analysis. All post-operative care is included in the package, even if you have questions or concerns YEARS down the road. For those who cannot make it back at 3 months, I recommend recording the



"Rainbow Passage" (found on the internet) on a smartphone and e-mailing it for analysis. You will receive a reply comparing pre and post-operative vocal parameters, a copy of both pre and post recordings as well as the voice analysis in 4-6 weeks.

**When can I have other elective surgery without harming my throat?**

**When are things permanent?**

A: >6 months. 3 months is minimum however you would need to be seen and examined in person before clearance could be granted. In cases where it has not healed, and clearance is not granted, you need to be prepared to delay the elective surgery. In cases of emergency surgery, you will proceed and we will deal with whatever happens afterwards if necessary. Always tell your anesthesiologist that you have had voice masculinization surgery and that they should use a "smaller" breathing tube and give steroids. If they have questions, they may always call the office to speak with Dr. Haben for specific recommendations.

## Testimonials

**Can I contact any of your prior patients? Can you send me more before/after examples?**

A: The practice does not use clients for advertising, nor provide client contact information, even with their permission. Many clients, however, are active on several transgender websites and blogs. Frequently, if you post a request to contact someone who has had a procedure at the Center, you will find a former client willing to speak with you. We take patient confidentiality and HIPPA very seriously.

