

RAYVOX

S O V T STRAW PRO

USER MANUAL

www.RAYVOX.co.uk

ABOUT THE INVENTOR



*Award Winning Singing Teacher
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Oren is an award winning singing teacher, serial entrepreneur, and inventor of the SOVT Singing Straw, and is proudly supported by both the Prince's Trust and Virgin Startup. Oren believes in enriching lives through the arts, and through the pursuit of meaningful science, develops innovative tools and resources to help singers enhance and improve their vocal development, health, and wellbeing.

O. Booker

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WHAT IS SOVT?

SOVT stands for 'Semi-Occluded Vocal Tract' - which actually is just a really elaborate way of saying that the mouth is partially closed. This partial occlusion allows air pressure and acoustic energy to be reflected backward from the lips, decompressing and helping the vocal folds vibrate more easily, and with less muscular effort. This 'back pressure' provides some important benefits to the voice user, allowing for an overall more efficient sound production process by...

1

...Sending 'positive' pressures back down the vocal tract to counter and balance the other pressures coming from the lungs. This provides a 'cushioning' later preventing harsh collision forces - basically, it FEELS easier to sing!

2

...Lowering phonation threshold pressure (PTP), which basically means your vocal folds have to do less work to resist the buildup of pressure coming from the lungs. This allows the vocal folds to more easily be set into motion!

3

...Entraining the vocal folds to sustain their movement and oscillation with ease once PTP has been achieved.

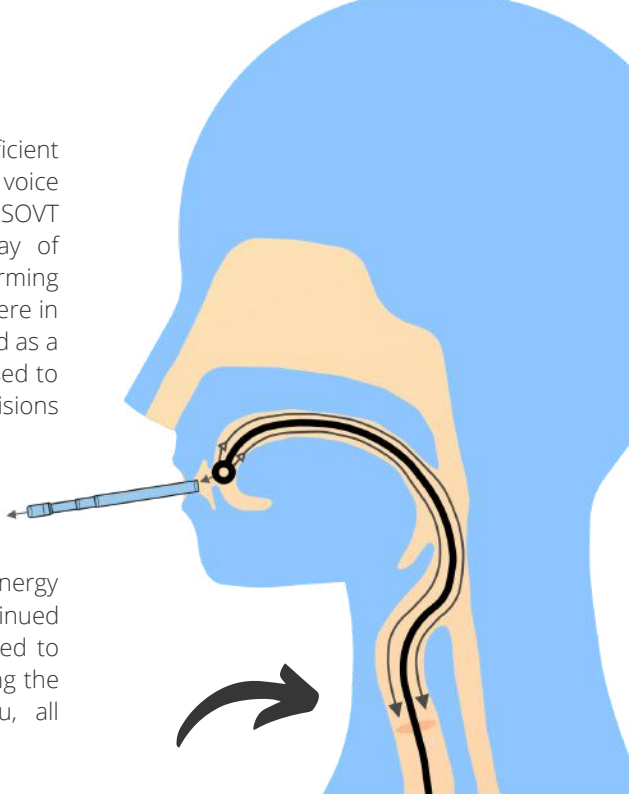
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...Aligning the vocal folds more aerodynamically, which means that they're more complimentary to the airflow.

ENERGY RECYCLING

SOVT exercises help with creating sufficient airflow as well as helping to check that the voice isn't being overworked. More importantly, SOVT is gentle enough to be used as a way of warming up the voice for singing, warming down the voice after singing, and everywhere in between - these exercises can also be used as a 'reset' button. In addition, SOVT can be used to help ease tired and fatigued vocal fold collisions by providing a protective 'air cushion'.

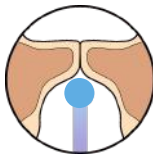
Think of this process like recycling the energy you've just exerted in order to make continued vocal function easier. This means you need to do less work, as our SOVT Straw is creating the perfect phonation environment for you, all automatically.





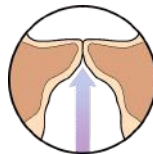
1

Pressure builds up beneath the vocal folds



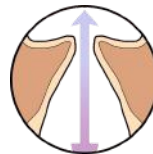
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As the pressure increases, we approach PTP



3

Once PTP is achieved, the vocal folds begin to part



4

The vocal folds are set into motion as air moves through



5

Air pressure and acoustic energy are reflected back down the vocal tract, which begin to encourage them to close from the top as well.



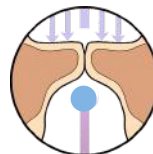
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These new pressure systems above the vocal folds help align & shape them more optimally, whilst the bottom closes and allows PTP to build again.



7

The reflected pressure from above reshapes the top of the vocal folds - pushing/pulling them into alignment, whilst also helping to relieve the loading on the vocal folds...



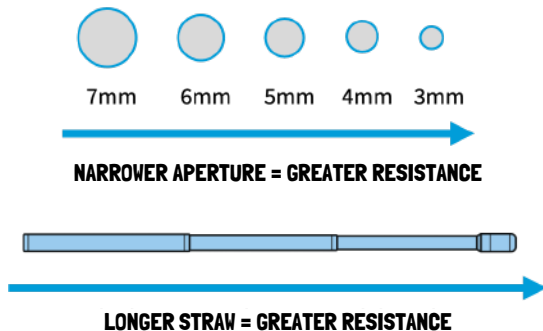
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The vocal folds in essence need to do less work now to resist the perpetual build of PTP subglottally, due to the recycled energy, making it easier to achieve phonation.

HOW DOES THE SOVT STRAW WORK?

The SOVT Singing Straw is a beautifully engineered patent-pending vocal development tool, uniquely designed to enhance the vocal development benefits of straw phonation (SOVT), enabling you to optimally align the vocal folds, relieve intensity of pressure coming from the lungs, encourage efficient vocal fold vibration, sing with ease, gain vocal power without straining, AND recover a tired and fatigued voice!

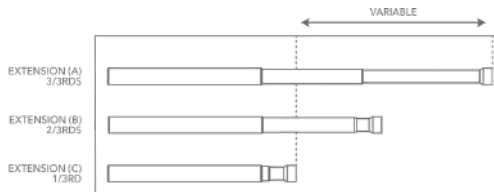
As a result of some pretty cool physics between the relationship of aperture size and tube length, we've managed to include a ton of resistance options within one device. To learn how, it's important to understand the following relationships...



RESISTANCE MODES

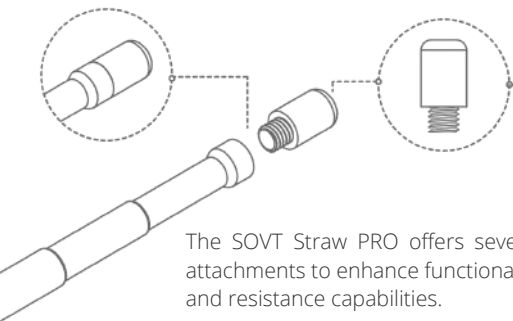
By playing around with the length, aperture, flow direction, and flow rate, you're able to generate a huge range of resistance. Importantly, you can generate the same resistance reliably each and every time, so you can be sure you're always getting the same kind of vocal workout.

VARIABLE LENGTH



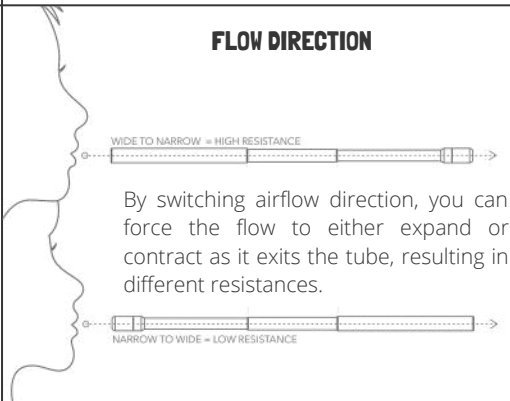
Featuring a 3 stage telescopic body offering a total length of $\approx 22\text{cm}$ and a minimum length of $\approx 10\text{cm}$.

MODIFIABLE ATTACHMENTS



The SOVT Straw PRO offers several attachments to enhance functionality and resistance capabilities.

FLOW DIRECTION



By switching airflow direction, you can force the flow to either expand or contract as it exits the tube, resulting in different resistances.

SOVT STRAW + 3MM ARA

ORIGINAL 3MM APERTURE
REDUCING ATTACHMENT

The SOVT Straw has been engineered to enable you to make live moment-to-moment adjustments to the way you train your voice, ensuring you always work with maximum efficiency. Our tools enable you to build vocal strength, gain vocal power without straining, and sing with ease.

3 STAGE
TELESCOPIC
DESIGN

OVER 12
RESISTANCE
OPTIONS

MODULAR
DESIGN

FOOD GRADE 304
STAINLESS STEEL

THREAD FOR
INTERCHANGEABLE
ATTACHMENTS



VARIABLE APERTURE REDUCING ATTACHMENT

8 NEW DIAMETERS
BUILT INTO 1 DEVICE

O-RING FITS HERE
TO SECURE THE
CONTROL DIAL IN
PLACE

OVER 24 NATIVE
RESISTANCE
OPTIONS

VARIABLE RESISTANCE
FROM 0.5MM TO 4MM
DIAMETER

Our most advanced attachment - the VARA has been designed by aerospace engineers to maximise your vocal development. Simply select to your desired resistance setting, or dynamically shift resistances throughout a vocal task by twisting the control dial indicated.

KNURL GRIPS TO
HELP YOU TWIST
THE CONTROL DIAL

SELECT ONE APERTURE
AT A TIME VIA CONTROL DIAL



WATER THERAPY ALIGNMENT ANGLE

A simple, yet powerful attachment - designed specifically to help you better align your head/neck when using your SOVT Straw with water. This'll help you maximise the therapeutic benefits of water bubbling. Plus, no more water spills as everything is angled perfectly!

ANGLED FOR
BETTER
HEAD/NECK
ALIGNMENT

THREAD DIRECTLY ONTO
YOUR SOVT STRAW

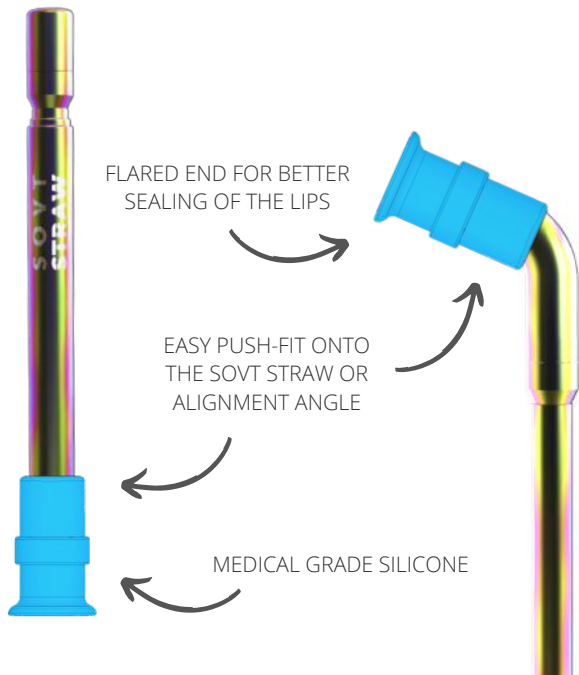
CAN BE USED WITH
ANY BOTTLE OF WATER

BUBBLES GENERATE
AC RESISTANCE

MAXIMISE THE
"MASSAGE EFFECT" ON
THE VOCAL FOLDS



COMFORT MOUTH PIECE / DR.VOX MASK CONNECTOR



Made from soft-touch medical grade silicone, our sensory-aware comfort mouth piece helps seal the lips to stop leaking air, as well as prevents sensory issues related to lips/teeth contacting metal. Plus, the mouth piece has been designed in such a way that it also doubles as a coupler for the Dr. Vox mask.

COMPATIBLE WITH
THE DR.VOX MASK



SOVT STRAW RESISTANCE OPTIONS

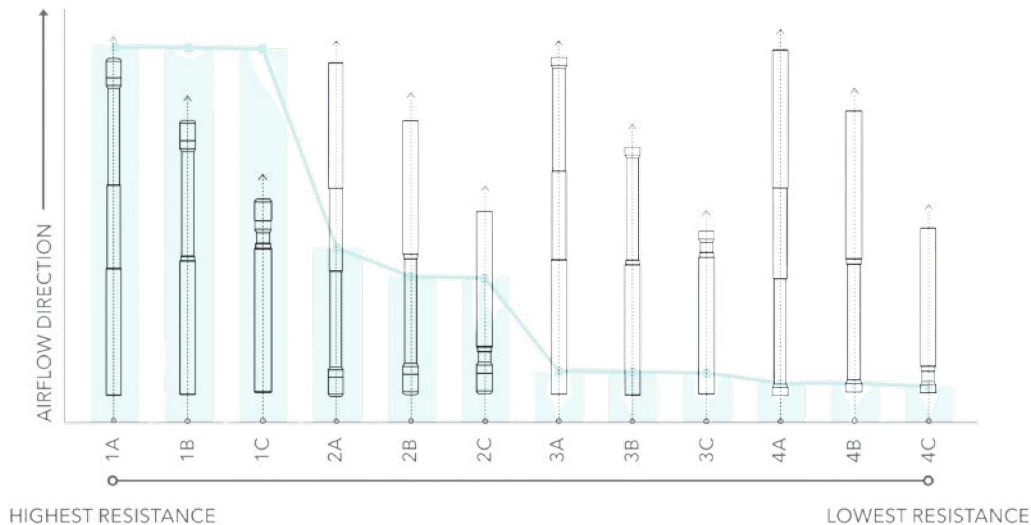
We've conducted a range of experiments and studies in order to determine the resistances offered by our SOVT Straw. We built a fully mathematical model, taking into account the complexity of the physics of airflow and pressure through tubes, which has allowed us to calculate the exact back-pressure offered by any straw configuration, with any flow rate. We then fed that data into a 3D computer model in order to simulate the flow of air through our device across a given timeframe (i.e. 20 seconds, 30 seconds, etc).

The below image shows our 12 fixed resistance settings of our original SOVT Straw, so you can use it as a reference to set your own device. All you need to do is copy the configuration pictured to replicate the resistance. High resistance to the left, moving to lower resistance the further right you go. Airflow starts at the line, i.e. you will blow into the SOVT Straw in the direction of the arrow. Configurations 1A-2C have the 3mm ARA affixed, whilst 3A-4C do not.

We measure resistance in a unit defined as "cmH₂O", which is basically just a fancy unit of pressure. In essence, think of it like being a certain distance below water and having all of that water pressure above you, pressing down. In more practical terms though, think of cmH₂O like weights on a training machine. Higher numbers = harder!

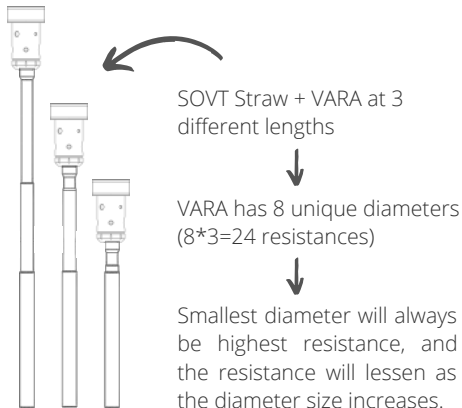
SOVT STRAW RESISTANCE OPTIONS

For the nerdy like me who enjoy numbers - the 1A configuration offers the maximum resistance and is equal to 16cmH₂O, whereas the 4C configuration offers the least amount of resistance and is equal to approx. 1cmH₂O.



SOVT STRAW PRO RESISTANCE OPTIONS

The SOVT Straw PRO changes things slightly due to our new variable aperture reducing attachment, which can offer resistance diameters from 0.5mm - 4mm. This means we can get vastly more resistance configurations in one device. Remember, each diameter can also have 3 different SOVT Straw lengths, so with 8 new diameters, that gives us 24 new resistance options to play with. Plus, we get an additional 6 configurations when using the alignment angle piece too. In total, combining all the different features, we calculate a minimum of 40 resistance options are available with the complete SOVT Straw PRO kit.



The longest setting (fully extended) for each diameter will always be highest resistance, and the shortest will always be lowest



Incremental changes in resistance can be achieved by varying the length of the SOVT Straw. To change resistance in a big way, modify the diameter.



To note, the 0.5mm diameter at full extension will offer the highest resistance of all the SOVT Straw configurations, offering over 50 cmH₂O.

ONE SIZE DOES NOT FIT ALL

As you might've guessed, it is impossible to apply a fixed sized straw or tube to every voice and expect the same benefits, which is another reason why we've developed something with so many options.

INDIVIDUAL DIFFERENCES

Every single person is anatomically different. Everyone has a slightly different vocal tract length and size, vocal folds lengths, and different muscle strengths - this all impacts on the natural resistance of the voice, and as a result, each individual will require a slightly different straw configuration in order to balance the system.

TASK DEPENDENT

The task that you're aiming to do will also need to be considered when thinking about what straw configurations to use. Different vocal tasks and pitches have different pressure and acoustic requirements, which in essence means that the efficacy of the straw/tube is also directly dependent on the task as well.

AC / DC

No... Not the band! An important consideration when deciding what kind of straw to use is whether you're aiming for that "massage" like effect for vocal health and therapy, or if you're wanting a more consistent athletic style workout. AC is the term given when you use straws with water which gives you that 'massage', and DC is when you're using Pure Straw Technique for athletic voice building.

TO WATER OR NOT TO WATER?

PURE STRAW TECHNIQUE

(DC RESISTANCE)

Uses just the mechanical properties of the straw to generate a consistent, steady stream of back-pressure. This trains the vocal folds to sustain their movement more efficiently, whilst also providing a more athletic workout.

This method is great for strength building and vocal conditioning, or as an all-rounder.



WATER BUBBLING TECHNIQUE

(AC RESISTANCE)

Uses the depth of the water as an additional resistance mechanism - offering an element of variability. Using water also provides an alternating “wave” of back-pressure, which generates an internal “massage” like effect.

This method is great for vocal recovery after a session, or as a therapeutic intervention.



SPARE O-RINGS FOR THE VARA



Your PRO kit comes supplied with some spare O-Rings. These are replacements for the O-Ring that helps the VARA to function. You might accidentally break the O-Ring when cleaning your VARA, or sometimes they'll break due to general wear-and-tear (although they are very durable). So, we thought the best option was to supply you with a bunch of spares.

The O-Ring secures the Control Dial of the VARA in place and stops it moving around, falling away, or changing setting with your input. It also helps to seal the unit and only letting the air escape from the selected aperture.

YOUR O-RING WILL SIT IN THIS GROOVE

You can easily put a new O-Ring on by hand, or by using some tweezers to help. We have some video instructions showing you how to replace the O-Ring within your supporting material. Simply login to your account on our website to access the guides.

SETUP / TESTING THE SOUND

In order for you to get the most reliable resistance, and the best experience, it's really important to ensure that you're using the SOVT Straw correctly. Take time to get used to the device and the feeling of it within the lips, and follow the below steps to get things right first time so you can experience the full benefits of straw phonation! Play around and experiment, and learn about how your vocal system feels and responds.

1 PLACE AND SEAL

Gently hold the SOVT Straw with the lips, making sure to get a good enough seal that no air can escape from the sides. Some people prefer to pull the lips slightly inward, whilst others prefer to pucker the lips slightly - whatever feels most comfortable for you is fine, but make sure that whatever you choose doesn't cause you to tense the lips or surrounding face muscles too much. There should be a good seal, and the muscles of the face should be relatively relaxed.

2 AIR FLOW

Generally there are two airflow pathways when we singing; through the mouth or the nose. Naturally, we'll want the air to be flowing through the SOVT Straw (i.e the mouth), so it's important to not allow any air to escape through the nose. If it does, we'll be bypassing the benefits of the technique. You can check that air is directed appropriately by simply placing your hand a short distance from the device, and feeling the air as you blow through.

3 SOUND PLACEMENT

Once you're comfortable blowing air through the straw, we need to check to make sure that the sound is also appropriately placed. To do this, take the SOVT Straw away from the mouth, then create a normal "Oo" vowel sound. At this stage, it can be on whatever pitch you find comfortable. Whilst sustaining the vowel, slowly bring the SOVT Straw back into position, making sure to continue phonating. You'll notice the sound transition through the straw. Try this a few times until you can create the sound with the straw already in position.

4 CHECKING IT ALL WORKS

Following from the above - whilst sustaining a single pitch through the straw, gently pinch and un-pinch your nose a few times. There should be no discernible difference in the sound. However, if the sound does cut off or change, it probably means that airflow is being routed through the nose, therefore bypassing the SOVT Straw. The best thing to do is to keep the nose pinched, then try to redirect the flow through the mouth (and straw). There might be a bit of trial and error here - so play around until you get it right!

5 FEELING THE RESISTANCE

Different people will experience different sensations attributed to 'resistance' / back-pressure. Though in general, most will feel like there is a new kind of pressure sensation within the vocal tract, especially around the larynx. Some might also feel a greater sense of awareness of the core muscles.

SELECTING A RESISTANCE – QUICK START GUIDE

When you first get your SOVT Straw PRO, you might not know exactly what resistance option to select. That's okay! We need to spend some time matching the natural resistance of your own voice with a configuration in order to get maximum training efficiency. I highly recommend doing this process with our online video guides, as it'll genuinely be much easier. You can access the guides via your account.

For now though, we're just going to experiment with opposing SOVT Straw configurations when doing different vocal tasks, noticing how everything feels. In its simplest form, we would want to pick one extreme of resistance, do a little test, then pick the polar opposite and do another little test, then compare the two together. We're essentially looking for whichever feels most comfortable. Then, we'd stick with the configuration we preferred and test it against another semi-polar configuration.

In order to help you really rapidly identify if a straw will work for you, I've devised two simple tests: Voiced Drills, and Pitch Glides. The Voiced Drills are a really great way to feel the effects of SOVT at different effort levels and airflow intervals, as well as feel the responsiveness of the straw relative to our output. Whilst the Pitch Glide which will help us identify how a straw configuration performs across multiple notes in our range.

SELECTING A RESISTANCE – QUICK START GUIDE

Explore both of these tasks per SOVT Straw configuration, comparing how each feels. The more you test, you might find that the Pitch Glides offer enough sensory information for you to feedback with. At which point, with your VARA affixed, simply rotate through the different resistance configurations, noticing which settings feel good relative to the pitches you're singing.

1 - FEELING BACK PRESSURE

VOICED DRILLS

Voiced drills are a great way to feel the effects of SOVT. This test can be achieved in about 30 seconds or less.

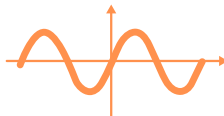


4x Short Burst
2x Long Burst

2 - CHECKING YOUR NOTES

PITCH GLIDES

Using a Pitch Glide, we're going to test whether the configuration we're using works across our entire vocal range.



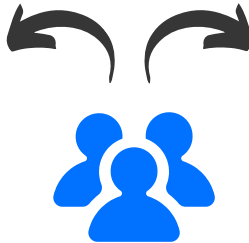
**Glide/slide
up and down
a few times**

FACEBOOK COMMUNITY

I have my own dedicated Facebook Group to aid singers with vocal development, and at the time of writing we have approx. 3k members. Plus, my Australian Distributor also has a really active Vocal Straws Facebook Group too - so if you're in Australia and want some expert guidance from vocal health professionals and speech pathology, that's the place to be.



RAYVOX OFFICIAL GROUP



AUSTRALIAN DISTRO GROUP

WE'RE ON SPOTIFY & YOUTUBE

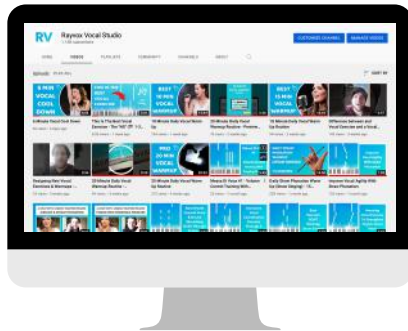
All of my vocal exercises, warmups, and cool downs can be found over on my YouTube channel and Spotify. There's a bunch of really awesome vocal tasks to explore beyond what we've covered in this book - so go and have a play around, and feel free to subscribe! Also included are some exclusive interviews and voice tips to help you on your vocal development journey.



www.bit.ly/rayvox-spotify



www.bit.ly/rayvox-youtube



CLEANING YOUR SOVT STRAW

Looking after your SOVT Straw is relatively simple. It's made of food grade 304 stainless steel, so you can pretty much treat it like a regular piece of cutlery. However, in order to elongate the life of your SOVT Straw, we recommend the following best practices when cleaning your device:

Make sure you clean your SOVT Straw after every use (both inside and out). If you just want a quick clean, wipe the outside with a cloth and use the provided cleaner to gently brush the inside surface. For a full clean, use warm soapy water, and use the provided telescopic cleaner to clean the insides of the device. We recommend collapsing and extending your SOVT Straw a few times during this process to ensure you're reaching every part of the internal surfaces.

Don't put the straw back into the container right away – let it dry out first.

Our SOVT Straw is designed and engineered specifically as an expiratory voice training tool. Its use is specific and limited to this purpose. Your SOVT Straw should not be used for drinking, or anything outside of the aforementioned purpose, as some liquids may damage the tool. Avoid using a metal wire brush to clean the straw - this might scratch the finish and will damage the straws protective layers. This is especially important for the inside of the SOVT Straw - if the internal surface is scratched in any way the airflow won't be as smooth, which in turn will effect the efficiency and variability of resistance.

We advise cleaning the SOVT Straw with isopropyl alcohol at least once a month, just to give it a “deep clean” and to ensure you're completely removing any buildup and bacteria.

COMPLIMENTARY DIGITAL CONTENT

Your SOVT Straw comes complete with a range of complimentary resources which can be accessed via our website. You'll get access to training videos, explainers, exercises, piano tracks, and more.

YOU CAN ACCESS YOUR CONTENT BY FOLLOWING THESE INSTRUCTIONS:

ALL OF THE COMPLIMENTARY SUPPORTING MATERIAL AND TUTORIALS
CAN BE FOUND IN THE "MY COURSES" SECTION OF YOUR ACCOUNT.

IF YOU DON'T HAVE AN ACCOUNT, REGISTER FOR ONE AT
WWW.RAYVOX.CO.UK - USE THE SAME EMAIL ADDRESS AS YOUR
ORDER! THE CONTENT WILL THEN BE INSTANTLY ACCESSIBLE.

If you have an account already but can't access the content, please email us at admin@rayvox.co.uk with your name and order number/access code (if applicable) and we'll give you access.

WANT TO LEARN MORE ABOUT STRAW PHONATION?



NEW BOOK!

"Learn everything there is to know about straw singing, from the science & physics, to finding your perfect straw, to warmups & more"

GET YOUR COPY TODAY!

WWW.RAYVOX.CO.UK

**PLEASE SHARE PHOTOS / VIDEOS ON INSTAGRAM OF YOU
USING YOUR SOVT STRAW - IT REALLY HELPS US OUT!**

BE SURE TO TAG US AND WE'LL REPOST



 **@SOVTStraw**



"SOVT STRAW" IS A TRADING NAME OF RAYVOX LTD, COMPANY NUMBER: 11767456. THIS IS NOT A MEDICAL DEVICE. YOUR SOVT STRAW MAY BE SUBJECT TO INDIVIDUAL DEVIATIONS. COLOURS MAY VARY. CHILDREN MUST BE SUPERVISED. WE ADVISE USING THE SOVT STRAW WHILST STATIONARY. RETURNS AND WARRANTY INFORMATION AVAILABLE AT: WWW.RAYVOX.CO.UK. PATENT-PENDING: GB2021/051346 & GB2008209.5