

Vocals

The Singing Voice

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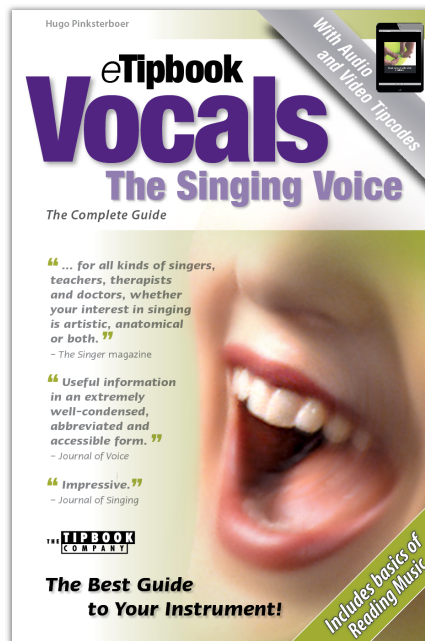
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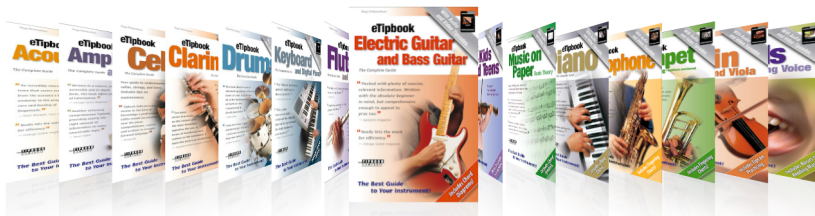
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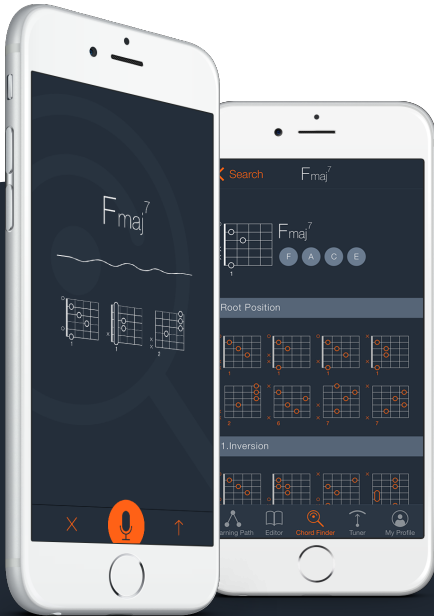
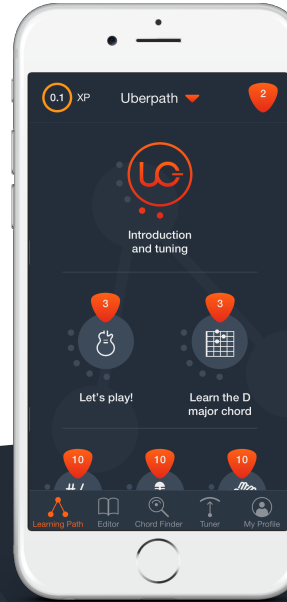
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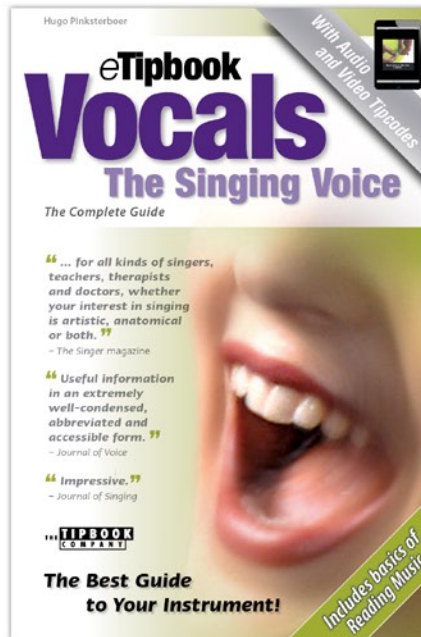


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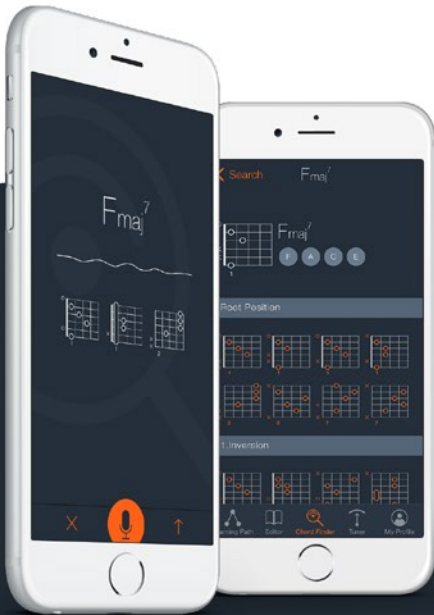
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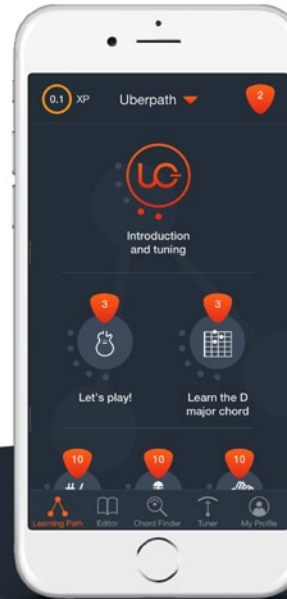
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Hugo Pinksterboer

eTipbook **Vocals** The Singing Voice

The Complete Guide



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Introduction

This is a book for novice and advanced singers who want to learn more about their instrument – the singing voice. It doesn't teach you how to sing, but it does help you to get the most out of your vocal instrument, whether you sing classical music, spirituals, grunge, heavy metal, jazz, country, salsa, or any other style of music; whether you sing alone or with others, in a choir, at home, in concert halls, jazz clubs, churches, or anywhere else.

Tipbook Vocals – The Singing Voice has been written in collaboration with classical and non-classical singers and teachers, therapists, and other experts. It presents their in-depth knowledge in a very easy-to-read format. All common terminology is explained, allowing you to easily grasp any other literature on the subject, from magazines to books and Internet publications.

Begin at the beginning

The first three chapters are mainly geared toward untrained and novice singers. They cover singing in general, the basics of the vocal instrument, and tips on learning to sing: Do you need lessons, where to find a teacher, reading music, and practicing. These chapters also provide the basic knowledge you need to read the rest of the book.

Advanced singers

Advanced vocalists can skip ahead to any of the other chapters.

The main aspects of singing are dealt with in Chapter 4; the registers in Chapter 5; and voice types and ranges in Chapter 6.

Different methods

The terminology used in this book is largely based on what's typically referred to as the classical or bel canto school of singing. Chapter 7 introduces you to some other schools of singing, e.g., the Estill Voice Training system (EVT) and Complete Vocal Technique (CVT).

Voice care and lyrics

Musical instruments need maintenance; your vocal instrument needs some proper care. The chapter on voice care tells you what you can, should or should not do to keep your voice in prime condition. Another chapter is dedicated to lyrics and how to remember and convey them.

Microphones and effects

Also included is a chapter on microphones and related equipment, providing you with everything you should know to make an informed purchase.

Being prepared

Chapter 12, *Being Prepared*, provides you with helpful hints to reduce audition anxiety and stage fright. After all, singers are often at the center of the audience's attention, and they don't have a physical instrument they can hide behind...

Reading music

As an extra, this new edition of *Tipbook Vocals* includes a chapter on the basics of reading music, showing you how easy it really is.

Glossary

The glossary at the end of the book briefly explains most of the terms you'll come across as a singer. Also included is a complete index of terms. The section *Want To Know More?* provides you additional sources of information. Enjoy!

— **Hugo Pinksterboer**

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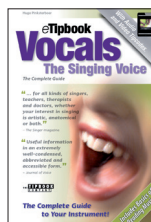
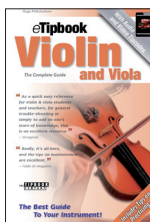
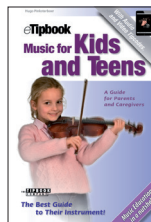
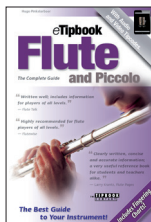
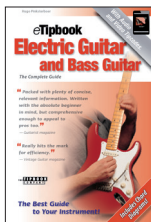
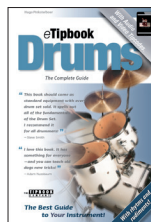
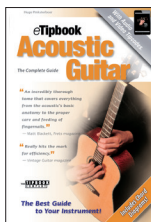
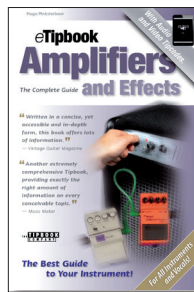
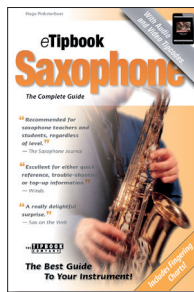
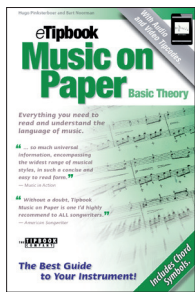
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4

Singing Well

To a country vocalist, singing well doesn't mean the same as to an operatic singer, a blues shouter, or a Broadway-style belter. Still, so many things are important to almost every singer, in almost any style, at any level. Knowing more about these subjects can help you to understand and extend the possibilities of your voice.

The singing voice is undoubtedly the world's oldest musical instrument. It's also the instrument people know least about, even after all those years. Why? Because it's the most complicated instrument there is. When you sing, you operate a very complex system of muscles, membranes, and cartilages and other tissues, most of which are not under conscious control.

Which muscles

You can make a guitar sound brighter by playing the strings with a plastic pick, rather than using your fingertips. You can make your voice sound brighter too, but you can't tell someone how by telling him which muscles to use.

Imagery

This is why teachers often use imagery to tell you what they mean. You have to place your voice behind your eyes, for example, or they suggest that you sing from your neck, or that you let your voice 'bounce' against your palate, or that you pretend to sing through a hole in the wall...

More sense, no sense

Some of these images make more sense than others. Some are close to how your vocal instrument really works; others aren't at all. But as long as they help to create the desired effect without damaging your voice, they can't hurt.

Open or tight

The meaning of 'singing well' largely depends on the style of music you're singing. An example: In most Western styles of singing, you need to 'open your throat' to sound good. In other styles of singing, however, you need to tighten your throat to produce the desired effect.

Hazardous for some

Likewise, techniques that are considered extremely hazardous for the voice in one style have been used for many years in other styles of singing — without a single problem. And while most singers shouldn't drink milk shortly before their performance, others always do.

Who's right?

All of this helps explain why there are so many conflicting stories and points of view on the subject of singing. This book doesn't tell you who is right or how it really works, if only because no one knows it all. It does tell you what various experts think about the main subjects.

Sing well

This may help you find your own ways to improve and understand your singing voice, allowing you to sing well — to be able to use your voice in a way that you can sing whatever you want to sing, with the range and the volume you need, without hurting your vocal instrument.



*Sing whatever you
want to sing...*

Classical or non-classical

This book mainly deals with classical and non-classical or contemporary Western styles of singing. These two large categories are quite alike in many ways, as you'll see elsewhere in this chapter, yet there are some major differences between them.

- Classical singers need a certain **minimum range** to perform the pieces that are available. Many non-classical careers have been built on voices that span little more than an octave — and most popular songs can easily be performed within such a small range.

- The way classical singers sing is often considered unnatural: Their singing voice sounds different from their **natural speaking voice**. Non-classical singers sound much more natural.
- Classical singers are supposed to have **an even timbre** along their entire range. Non-classical singers often deliberately stress the different timbres of their natural registers. Likewise, the **break** or **passaggio** should not be heard in classical music, but there are non-classical styles of singing in which it is used as an effect or technique (e.g., yodeling).
- Classical singers have to learn to **project their voice** to make themselves heard. Non-classical singers use microphones, which allow them to be heard even when singing as softly as they can — or even to build a successful career on a ‘small’ voice.
- In classical singing, your **timbre** is sometimes considered more important than the lyrics you sing. In non-classical singing, it’s usually the other way around.
- In non-classical music, you can sound **breathy, hoarse, rugged, gritty, hollow, nasal, or tight-throated** — and still be successful. As a classical singer, you can’t.
- In classical music, the standards for ‘**singing well**’ are much tighter than in non-classical music: Your timbre, your control over your vocal instrument, and your range have to meet certain conditions in order to ‘sing well.’

TIP**Versatility**

Some people have extremely versatile voices. They can learn to sing whatever they want. Others have restrictions. You may have a voice that’s simply unsuitable for classical music, or for rugged rock & roll, or for melodic pop. If you insist on singing in those styles anyway, chances are you’ll hurt your instrument. A good teacher can help you find out which styles of music best suit your voice.

THIS CHAPTER

This chapter continues with sections on various physical aspects of singing. First are some of the conditions for good singing: breathing, and breath support (page 42); posture (page 44); what (not) to do with your throat (45), your mouth (47), your tongue (48), and your voice box (49). The section on overtones or harmonics (page 51) offers essential information to be able to fully understand the sections on timbre and resonance (54), and on formants and the singer's formant (62). The following sections deal with some other subjects you can learn to control in order to improve your singing: volume (65), singing in tune (68), articulation (74), the onset or attack (78), and vibrato (80).

BREATHING

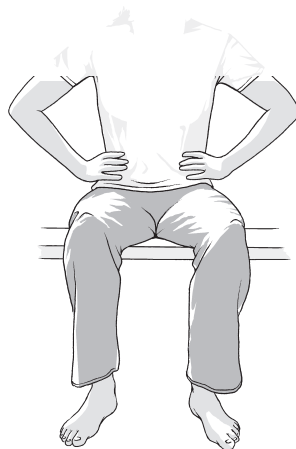
The best way to breathe for singers is basically the best way to breathe in everyday life — and it's the way newborn babies breathe. What is good breathing, should you use your nose, your mouth, or both, and how do you prevent running out of breath and noisy breathing?

Large bowl

Well-trained singers use their diaphragm when they breathe, as explained in Chapter 2. When you exhale, this muscle relaxes and takes on the shape of a large bowl, bottom up. To inhale, you flatten your diaphragm. Your belly expands, and air enters the lungs.

Belly breathing

Because of the expanding belly this is known as *belly breathing* or *abdominal*



Hold your waist, thumbs in your back, and feel how your belly, sides, and back expand.

breathing. Your belly is not the only part that expands: Your sides and back expand as well. If you hold your waist with both hands, thumbs in your back, you can clearly feel they do.

Book

An easy way to experience belly breathing is to lie on the floor with a book on your stomach. Take deep breaths as you watch the book slowly rise and fall.

Rib cage

Often, singers also use their ribs to inhale, expanding their rib cage. This combined breathing technique is known as *costal-abdominal breathing* (*costa* is *rib*). It allows you to breathe efficiently and to carefully control the air stream that goes out, energizing your vocal folds.

TIP



Your shoulders

Untrained singers — and many non-singers — often tend to breathe very superficially. They use the upper part of their lungs only, raising their shoulders when they inhale. This type of shallow, upper-chest breathing doesn't supply sufficient air for singing longer phrases.

Superficial breathing also makes it considerably harder to relax your larynx and other parts of your vocal instrument, and it can't be controlled as accurately as costal-abdominal breathing.

How much?

Too much air is as bad as too little air. If you breathe in too deeply, chances are that the superfluous air escapes while you sing (making your voice sound breathy).

Alternatively, you may apply tension to prevent the excessive air from flowing out, which doesn't do your vocal performance any good either: You'll probably sound pinched.

Tip of the day: Singing well is not about breathing deeply, but about breathing well.

Incomplete closure

A breathy tone can also be due to an incomplete closure of the glottis, with air leaking out. This can result in vocal nodules and other problems (see page 129).

Breathy tone

For non-classical singers, a breathy tone isn't a bad thing in itself, by the way. For some singers it's their trademark; others use it occasionally. When they do so properly, there's no risk involved. This is mainly a matter of controlling the opening of the glottis, rather than letting air escape involuntarily because the vocal folds can't close the glottis correctly over its entire length.

**Tipcode VOCALS-006**

A breathy tone can be very effective, as you can hear in this Tipcode.

TIPCODE**Too little air**

If you run out of air very quickly, you're probably using too much when you sing. In most cases, breathing deeper is not the solution. Breathing better and using breath support is.

Timing

You can also run out of air because of bad timing: Singing requires that you plan your breaths throughout a song. Many singers make small marks on their lyric sheets to indicate the best places to take either a quick catch breath or a long breath.

Nose or mouth?

Some singers are nose breathers; others consider themselves strictly mouth breathers. Most singers seem to use both openings,

simultaneously or alternately, depending on what seems to be best at that moment. Most people do so when they speak too.

The mouth

Breathing through the mouth takes less time, and if you need to take in breath quickly, it's the only noiseless way. It also helps to lower the larynx and widen the throat, and it enhances belly breathing. However, it dries your mouth, so you may need to drink more, and mouth breathing doesn't offer any protection against airborne pollution.

The nose

Nose breathing offers some protection against dry air, smoke, and other types of air pollution. But it encourages shallow breathing, using just your upper chest. Also, it's hard to get a full breath using your nose only, unless you have a lot of time to spare.

Noiseless breathing

Inhaling through the mouth should be absolutely noiseless. If it isn't, your glottis isn't fully open, and air rushes along the edges of your vocal folds. Want to check? Open your mouth, then breathe in and out, first with a gasping sound and then without it. You switch from gasping to non-gasping by varying the width of the glottis. If you can't get rid of the gasping sound, you can't separate your vocal folds far enough. Ask a teacher for specific exercises.

BREATH SUPPORT

Good breathing doesn't do you any good without breath support. If you don't support your breath, you'll run out of air in no time. Proper breath support is also essential for your timbre, your loudness, and pitch control, for example.

Keep it low

If you don't know what breath support is, you may want to try the following. First inhale by expanding your belly, lowering your

diaphragm. Put your hands in your sides and feel them expand too. Now hold your breath, but don't block it by either closing your vocal folds (as if you were to say 'air'), lowering your velum (the soft palate; as if you were to say 'go'), using your tongue (as you would when saying 'tea'), or closing your mouth. Instead, hold your breath by *keeping your diaphragm low*: That's what's known as breath support, *air support*, or *abdominal support*.

A belt

You can also put a belt around your waist, at belly height. If you inhale using your diaphragm, the belt will feel tighter. Now exhale — singing or silently — but maintain some tension on the belt. Again, that's breath support.

Sit down

If you have a hard time feeling what's actually going on as you do this exercise, you may want to try this again sitting down, so you can concentrate on your torso only.

Control

Breath support is not just about ensuring that you don't run out of air. It's also about controlling the pressure you build up under your glottis (the *subglottic pressure*) and about balancing it against the closure of the vocal folds. This helps control loudness, but also timbre and pitch.

Tightened throat

Without breath support, you may tend to tighten your throat to prevent air from rushing out, resulting in a pinched sound. You may also tend to use too much tension and develop symptoms in your neck, lower jaw, and tongue.


TIP

Sustaining pitch

If you can hit a note in tune but have problems sustaining the pitch, that's probably due to poor breath support. Without proper breath support, you may also have problems extending your range and stamina.

Breathy tone

Quite a few famous pop singers don't have proper breath support. When singing softly, they sound breathy because uncontrolled air escapes. Only when they sing loud — using all the air they have — does their tone become clear and focused.

POSTURE

Good singing requires good breathing, and both require good posture. Your voice benefits from being supported by your entire body, not just the parts that seem to be directly involved.

An expert

Good posture has to do with standing erect in a relaxed way, as if you're pulled up lightly by the top of your head, with neck and torso well-aligned, feet slightly apart, maybe one slightly in front of the other, knees not overstretched, and without using any muscles you shouldn't use. Unfortunately, doing all of this still doesn't guarantee you're doing it right. Only an expert (a good teacher, a voice coach, a physical expert) can tell you.

Natural?

The posture that feels natural to you is not always good. A good singing posture may even feel unnatural at first, just like opening your mouth wide enough for singing.

Music stand

As a choir member, you may have to use sheet music. If so, try using a music stand. Holding the sheet music yourself may constrain your neck and shoulders, or you may tend to tilt your head forward, constricting your throat.

Sit

In some choirs, the singers sit. Singing guitarists and keyboard players often play sitting down too, and singing drummers and pianists always do. If you have to sing sitting down, make



*Singing
pianists...*

sure that your diaphragm has as much working space as if you were standing up. In other words, you shouldn't sit too low. If you play an instrument and use a microphone, also make sure the microphone doesn't interfere with your posture. If it does, consider using a headset (see page 149).

Move

Even if you dance or move around a lot when you sing, good posture is as important as it is when you stand or sit still. One of the main problems for singing dancers is breath control, and even famous singers are known to sing terribly out of tune when dancing simultaneously. This problem is often solved by lip-syncing (not just in video clips, but 'live' too), though some singers prefer to practice singing in tune while jogging, for example.

OPEN THROAT

In non-classical literature, you'll often read about the need for an open throat. An open throat, which is necessary to produce an open, non-constricted sound, is a matter of complete relaxation. You don't have muscles to open or widen your throat; you only have muscles to tighten it.



Tipcode VOCALS-007

This is Angela singing identical notes with a tight throat and an 'open' throat: The difference is obvious.

TIPCODE



Yawn or bite

Your throat automatically widens when you yawn: Your larynx is

lowered, and your glottis opens. The same usually happens when you're about to take a bite from an apple, or when you're genuinely surprised. Again, a teacher can help you further if this doesn't make things clear.

Don't push it

Some singers tend to force their throat open. The resulting sound is often compared to singing with a hot potato in your mouth. There are well-known singers who use that type of sound as their trademark, so it's not bad *per se* — as long as the extra tension doesn't translate into pain, fatigue, or other symptoms, and as long as you don't sing classical music.

Tight throat

Singing with a tighter throat doesn't need to be bad either. Plenty of Western pop singers have built a career on a guttural, 'tight throat' timbre. And *overtone singers* in Tuva, Bulgaria, Vietnam, and other countries tighten their throat so much that the fundamental pitch of their vocal folds is strongly reduced, thus bringing out the whistling sound of the overtones only (see page 51).

TIPCODE



Tipcode VOCALS-008

This Tipcode demonstrates the intriguing sound of overtone singing.

Dangerous?

Is singing with such a tight throat dangerous for the vocal instrument? Probably not: Overtone singers can have long, long careers.

Grunting

To grunt, you also tighten your throat a little. The resulting sound

incorporates your *false vocal folds*. These folds are located just above the ‘regular’ vocal folds. Vocalists in various non-classical styles have used or still use these false or *ventricular vocal folds*, from the late jazz singer and trumpeter Louis Armstrong to pop singers and death metal singers.

Detrimental

Many — classically trained and other — experts state that singing this way is detrimental to your voice. Is it? There are plenty of singers who’ve shown the opposite, and some of them have been around for many decades. Specialized teachers can help you grunt and use other vocal effects without hurting your vocal instrument (see Chapter 7).

YOUR MOUTH

Using your voice to the max usually requires that you open your mouth quite a bit further than you normally do. This may feel awkward at first. If it does, just watch some great singers singing, and see that it doesn’t look that weird at all.

Don’t push it

Relaxation is the key word, again. You shouldn’t force your mouth open, but just let it go. Singing too widely can be just as big a

Smile

A smile tends to add brightness to your sound. In the old days, castratos (see page 167) sang with a smile, covering their upper teeth. Today, some schools of contemporary singing promote a light, ‘inner’ smile to enhance your timbre. Try the effect by singing the vowel e as in ‘bed’. Enlarging your smile makes for a brighter sounding e. The smile lifts the soft palate, enlarging your resonator.



TIP

problem as singing with too small a mouth opening. Likewise, opening your mouth vertically yields a different tone than opening it horizontally, as if you smile.

Purse

Classical singers often lightly purse their lips on certain vowels, as if they were a flower. This enhances the projection of your voice, which is essential if you don't use a microphone to make your singing audible and intelligible.

The shape of your resonator

Lip positioning influences how you sound simply because it directly affects the shape of your main resonator — your mouth. Lip positioning is one of the main elements of articulation. Slight lip variations change your sound or timbre a bit. Larger movements change it so much that you hear a different vowel: After all, going from ah to oh is mainly a matter of repositioning your lips. When you do so very slowly, you'll find that you produce a range of different in-between timbres or sounds as you do.

YOUR TONGUE

Your tongue also plays an important part in the sound you produce. The main thing to do with this flexible organ, though, is not to think too much about it. Focusing on what you should and shouldn't do with your tongue often results in a rigid tongue — and that doesn't help your singing at all.

Relaxed

Your tongue is instrumental in coloring the sound: It changes the shape of the inside of your main resonator. You can use your tongue to produce a wide variety of vowels (slide from ah to ee, for example), consonants, and other sounds. When tongue activity is not required, it's best when you leave it relaxed, its tip loosely resting against the inside of your bottom teeth.

Retracted tongue

Your tongue only needs extra attention if it hinders your singing in any way. Some singers tend to retract their tongue, especially when singing their lowest notes. This constricts the sound. Others use the base of their tongue to force the larynx down, which is not the way you should do it. Singing high notes often seems to create tension in the tongue too.

Convex, concave, grooved, and trembling tongues

Keeping your tongue in a convex or a concave position isn't helpful for your singing either, and neither is — subconsciously — creating a lengthwise groove in it. Why? Because all of this means tension, and tension impedes singing. Another thing to avoid is the high-tension tongue tremolo, in which the tongue trembles when singing a vibrato.

THE VOICE BOX

The voice box or larynx is where your voice is generated. It houses the vocal folds, and includes the cartilages and the muscles that control them. Besides the many different ways the parts of the voice box can move, the entire box can move up and down too.

In detail

Most of the movements of the various parts of the larynx (vocal folds, cricoid, thyroid, arytenoids, and others) are not under conscious control. They're also extremely complex.

There are plenty of books that describe this part of the vocal instrument in detail.

**Up and down**

When singers and teachers talk about controlling the larynx, they usually mean controlling its height. If you're an untrained singer, your voice box tends to go up and down automatically. It will

probably move up a little when you start singing, and a little more as you sing higher notes. When dropping in pitch, the voice box moves down again. You can easily see this with male adult singers: Look at their Adam's apple. Female singers and boys can *feel* their voice box moving up and down; simply put your hand on the throat.

Up or down

Singing well has a lot to do with controlling these up-and-down movements. The best position of the voice box depends on the style of music you sing, or the way you sing.

Down

Classical singers usually keep their larynx in a low position. This expands the vocal tract. Just like a guitar with a bigger soundbox, a larger vocal tract makes for a warmer, rounder, darker, 'classical' timbre. Gently pursed lips enhance this sound. Lowering the larynx is also said to increase the resonant capacity of the voice, especially as it's often combined with raising the soft palate.

Up

Conversely, a high larynx reduces the size of your vocal tract. Like a guitar with a smaller body, this makes for a brighter, more focused sound. Many pop, rock, and musical theatre singers let their voice box rise (rather than forcing it upward!) when singing high notes. Doing so without any unnecessary strain and muscle tension may require the help of a teacher.



Traditional
Peking opera
(Dreamstime)

Peking Opera

Another and very different style of high-larynx singing is employed by vocalists in the traditional Peking Opera and the Japanese Kabuki Theatre, with their very bright, shrill voices.

In-between

Other schools of singing promote a relaxed, stabilized, natural

larynx position, similar to where it is when you speak (e.g., speech level singing or speech quality singing).

Covering

Lowering the voice box to make vowels sound warmer or rounder, and to soften the brittle edge of a bright timbre, is generally known as covering. As it slightly modifies the sound of your vowels, it is also referred to as *vowel mutation* or *vowel modification*.

Larger range, easier transition

Covering not only darkens the vowels. It also helps to avoid breaks between registers, mainly in the male voice, and it allows men to extend the range of their heavy register: They can sing higher notes without switching to their light register.

Classical and non-classical

Traditionally, covering is considered a classical technique. Many non-classical singers avoid it, to not sound too classical. Some non-classical schools of singing, however, promote this technique too.

HARMONICS

Why do certain vowels, pitches, or timbres make your cheeks vibrate, or your skull, your chest bone, or that small spot under your chin? How can operatic singers sing over an orchestra without a microphone? Why is it impossible to hear the difference between the vowels in the highest range of the female voice? To answer these and many other questions that are covered in the following sections, you'll need to know a bit about sound and harmonics or overtones.

Vibrating air

Simply put, sound is vibrating air. The faster it vibrates, the higher the pitch of the sound will be. Stretch a rubber band, make it

vibrate, and listen to the sound. Now stretch it a bit further. You'll see that it starts vibrating faster, and you'll hear a higher pitch.

A guitar string

If you look closely, you'll see that the rubber band seems to vibrate at different frequencies as you change the tension — and it does indeed. Just like a guitar string, for example. When you play the low A-string of a guitar, it vibrates 110 times per second (110 hertz, or 110Hz).

The table of 110

But that's not all! At the same time, each half of that string also vibrates at twice that speed (220Hz). And each third piece of the string vibrates three times as fast (330Hz) — and so on, up to frequencies of 20,000Hz and higher.

Harmonics

These 'additional' frequencies are known as *harmonics*, *overtones*, or *partials*. Every instrument produces these harmonics, and that includes the human voice.

Guitar or cello?

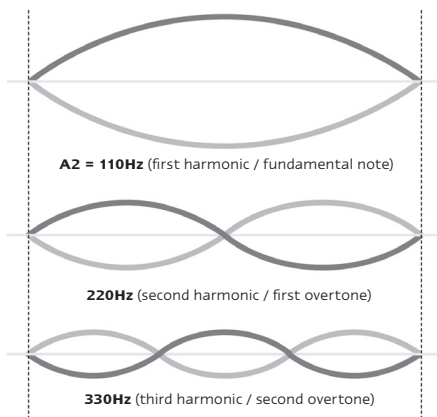
If a cellist plays the same A note as the guitar player, the string produces the same harmonics as the guitar string (220Hz, 330Hz, etc.). You can tell that it's not a guitar, though.

Different intensities

How? Because the harmonics of the cello have different intensities. One instrument might stress the even harmonics, for example, and another stresses some of the uneven harmonics.

If this sounds too simple, just imagine how many combinations you can make with 20,000-plus different frequencies at different volume levels!

A string
always
vibrates
at various
speeds.



Another resonator

The conical body of a saxophone makes this instrument sound different from a clarinet, which has a largely cylindrical body. The differently shaped bodies or resonators create different harmonic or overtone intensities, and thus recognizably different timbres.

Changing the resonator

Back to the human voice: You can tell an *a* from an *o* or a *u* because of the same reason — a differently shaped resonator. Basically, the different vowels and many other sounds you produce are all a matter of producing different overtone intensities, and you do so by using your articulators to change the shape of your main resonator — your mouth.

A recognizable mix

In other words: Each vowel produces a recognizable mix of stronger and weaker harmonics. You can tell one vowel from the other just like you can tell a sax from a clarinet, or a violin from a banjo.



A clarinet and a soprano saxophone: different resonators, different sounds (Yamaha)

Too high

When a female opera singer sings her highest notes, it's impossible to distinguish her vowels. Why? The highest notes produce so few effective harmonics that the differences between the vowels fade.

TIP**Bright or subdued**

You can make your vowels sound bright or subdued — apart from those very high ones, maybe — in the same way that you produce different vowels: by varying the position of your tongue or your

lips, thus changing the shape of your resonator. As a result, certain harmonics will be stressed or reduced.

Treble control

Stressing higher harmonics (*i.e.*, higher frequencies) will make for a brighter timbre; reducing them will produce a darker, warmer sound. This is very similar to turning the treble control of an amp up or down.

Resonating objects

If you play a track of your favorite singer or band, especially at higher volumes, certain objects in the room may start vibrating along with the music at certain frequencies.

Likewise, various parts of your body can vibrate sympathetically along with your voice. If you sing a vowel at a certain pitch or with a certain timbre, you can produce and enhance (harmonic) frequencies that may cause your skull, your chest bone, or any other parts of your body to vibrate along — or any object in the room you're in.

Stop

These sympathetic vibrations result from the sound you produce. If you stop your skull or chest bone from vibrating (by simply holding them) you won't sound different. This may be hard to believe, as it will most probably *feel* different to you. You may also *hear* it differently — but your audience won't.

RESONANCE AND TIMBRE

Resonance and timbre are closely related subjects. In just a few words: You can produce different timbres (and vowels, and other sounds) by influencing the resonances in your vocal tract. You do so by positioning your active articulators: your tongue, lower jaw, lips, and soft palate. Again, this reduces or boosts certain harmonics.

Articulation

Of course, you also use your articulators for proper *articulation*: the exact way you shape your vowels and consonants. Articulation is dealt with on pages 74–78.

Your personal timbre

Every human being has a personal, recognizable timbre, as unique as their fingerprints. Your personal sound or timbre is mostly determined by the specific dimensions of your vocal tract and other parts of your vocal instrument.

An example

For example, a wide, flattish palate is said to promote a darker sounding voice. A high, narrow palate would result in a lighter timbre. In other words: Differently shaped palates produce harmonics or overtones with different intensities, which makes for recognizably different timbres. The same goes for many other elements of the human voice. Generally speaking, a larger vocal tract will make for a darker sound; a smaller vocal tract will promote a brighter timbre — just like a baritone saxophone has a darker timbre compared to the much smaller soprano saxophone.

Type of voice

Your personal timbre is a major element in determining your type of voice. A tenor's range is higher than that of a baritone, and his timbre is much lighter. An alto may have a range that's very close to that of a soprano, but the alto has a warmer, darker timbre.

Your style

Your timbre can also be a decisive factor in determining which styles of music you can sing with more or less success, and which styles of music you'd better not sing if you don't want to damage your vocal instrument.

Emotions

So some things are fixed, when it comes to timbre. But within those limits, you can do a lot to vary the timbre or color of your voice. You can make your voice sound happy, angry, heavy or light, and so on — and you don't need a teacher for that purpose. When

you feel sad, nobody needs to tell you how to sound sad. The timbre often comes along automatically with the emotion.

Improving your tone

You may be able to improve your control over your timbre. Singing is very much like playing a musical instrument. Learning how to make an instrument sound doesn't require substantial practice, but making it sound good takes years. Likewise, almost everybody can sing, but improving and learning to control your tone — to make your singing voice sound the way you want it to — can take many years.

Non-classical singers

This doesn't go for classical singers only. As a non-classical singer you can learn how to make better use of your specific timbre, or how to overcome problems, how to stress the strong points and reduce the lesser qualities of your voice, how to produce the timbre you want without hurting your vocal instrument, and so on, without losing your trademark sound, your authenticity, or anything else.

Sax players and guitarists

On most musical instruments, it's not that hard to give a student basic instructions on how to improve or adjust the tone. You can tell a violinist not to press the bow too hard; you can tell a sax player to not put the mouthpiece too far in his mouth; you can tell a guitarist to produce a brighter tone by playing closer to the bridge.

Invisible

For singers, this doesn't work, as most elements of the vocal instrument are invisible, and many of these elements are not under conscious control. It is no use telling a singer to lift his arytenoids a bit, or to relax his *conus elasticus*...

Some examples

This is one of the reasons that singers and teachers talk about various types of resonance, for example, or about 'singing in the mask': They talk about what they want you to hear or feel,

rather than about what you should do to get there. Here are some examples, used in a variety of schools of singing.

Resonance

The different sounds, pitches, and timbres you produce can generate vibrations in various parts of your body. These are often referred to as *chest resonance* and *head resonance*, for example.

Chest and head

Singing a note with ‘chest resonance’ typically means singing it in a way that you can feel your chest vibrating along with the note you sing. This produces a darker timbre than singing the same note with head resonance. Using ‘head resonance’ results in a brighter, more brilliant timbre that has a ring or a twang to it.

Pitch and resonance

Chest resonance, head resonance, throat resonance, mouth resonance, and other types of resonance are sometimes associated with pitches or pitch ranges: Low notes are said to have chest resonance, notes in the middle range are said to have *throat resonance*, and high notes have head resonance, for example.

Register

Of course, there’s a link here with the way many singers name the various registers of the singing voice: the *chest register* for the lowest part of the range, and the *head register* for the highest part of the range, for example. Each register has its own timbre. Chapter 5 deals extensively with this subject.

Timbre and resonance

Other schools of thought don’t link types of resonance to specific pitch ranges or registers. They speak of using head resonance or *head voice* to add brightness to low notes, for instance. This would be a way to create an even timbre throughout your range: High notes sound less shrill with some extra ‘chest’ warmth or darkness, and low notes sound more musical if they have some brightness to them.

Not everyone

Not everyone agrees. Even within one style of singing, there are

many different opinions. Here are four views on one subject: Some classical singers say you should never use chest resonance or *chest voice*; others say you should never use pure chest resonance, but always create a blend. Some say you should never use chest resonance in your high range, yet others say they always do, even on their very highest notes...

Mmm

You can easily feel what the various types of resonances are referring to. Hum an *mmm* at a comfortable pitch. Maintain the pitch, and try to send the sound to various places in your body. When you do, you'll find that you — if even ever so slightly — change the shape of your vocal tract, maybe by changing the position of your larynx, by lowering or lifting your soft palate, by repositioning your lips. Thus, you generate different harmonic intensities. The stronger, accentuated harmonics you produce can make different parts of your body vibrate sympathetically.

The right words

Do the vibrations or 'resonances' in your chest or head actually contribute to the sound you produce? Some say they do — others point out that your head and your chest cannot actually resonate, as they're filled with non-resonating substances: your brain and your lungs, respectively. Filling a resonator (*e.g.*, the soundbox of a violin or a guitar) with similar substances would simply kill all of its resonating qualities. Who's right, however, is not the issue of this book.

The main thing is that your teacher or the author of the book you read uses words and images that help you understand and improve your voice.

The right timbre

It's also important to know that the vibrations you feel often differ from the vibrations another singer feels — just like different glasses vibrate along to different tones and overtones. The main thing, when it comes to singing, is that the vibrations you feel can help you reproduce a certain timbre. If you know that this one note sounded great when you felt vibrations in your cheeks, reproducing these vibrations can help you reproduce that timbre.

True or not?

There are many more approaches. Some are quite close to what's actually happening in your body, your larynx, or your head; others tend to deny how it really works. As long as they're effective in getting singers to sing better, you may wonder how bad they are.

The back or the front

For example, some teachers will tell you to visualize using the back of your vocal folds, toward the neck, for low notes and dark timbres (and to produce belly-laughs, or to show a big dog that you're really serious). For high and bright notes (and giggles, and baby talk) it's suggested you focus on the front part of your vocal folds.

Placement

Singers often talk about *placing the voice* in this context. So you can read about 'mentally placing the voice on the front part of your vocal folds.' Placement is also used to indicate where you should or could feel vibrations: 'placing the voice in the nose,' for example.



Placing the voice...

Focus

'Placing the voice forward' usually refers to what's also known as focus: singing in a way that your voice projects well. One popular

image to help you focus your voice is to pretend you're singing through a small hole — yet with a wide open mouth. If you don't focus, your voice will not project.

The mask

Another term you'll come across in many books and methods is the *mask*. The mask is the 'inside of your face,' which refers mainly to the area behind and around your nose.

'Singing into the mask' or placing the voice in the mask is often said to add definition, presence, brightness, power, or projection to your voice.

Classical or non-classical

Though many non-classical singers use the 'mask' as described above, others consider placing the voice into the mask as something only classical singers do. Among classical singers, however, opinions on the concept of singing into the mask differ at least as much.

Strain

Other singers — both classical and non-classical — don't use the mask or similar concepts at all: They strongly feel that trying to evoke vibrations or resonances in certain parts of the body (the mask, the chin, the cheeks, or anywhere else) can easily cause unwanted strain. The concept of the mask is also said to hinder the coloration of your voice — *i.e.*, your ability to create various timbres or colors.

The voice box

Likewise, some teachers dislike the concept of placing the voice in certain parts of the head or the body. One of the reasons given is that concentrating too much on where to place the voice tends to distract the singer from the very source of his or her voice: the voice box.

Different ways

A common problem with terms such as 'placement' and 'the mask' is that they're used in many different ways — so always make sure you know what the other person is referring to.

Nasal timbre

For example, singing into the mask is also sometimes linked to singing in languages with a more or less nasal timbre, such as French or Portuguese. Singers often feel these sounds in their nose, or in their ‘mask.’ What actually happens is that you lower your soft palate, giving access to the nasal cavity: This makes for the nasal timbre that makes French words like *quinze* (fifteen) or *mon* (my) sound really French. So while singing with a nasal ‘congested’ timbre is highly undesirable in many languages, it is required that you do so in others.



Tipcode VOCALS-009

Angela demonstrates how ‘nasal’ the French words mon, jambe, feminin, timbre, and quinze can sound.

TIPCODE



Guttural timbre

The same goes for a guttural timbre. In Western classical music and many styles of non-classical music, singing ‘from the throat’ is considered a bad habit. However, many schools of performance, such as the traditional female choirs from Bulgaria, are famous for their harsh, almost brassy, guttural timbre. What singing well means differs per style of music, per culture, per era, and so on — and what’s considered a beautiful timbre depends on at least as many factors.

Helpful sensations

As a singer, you don’t hear yourself the way your audience does. Most of what you hear comes from within, through bone conduction and through your *Eustachian tubes* (the tubes that connect your ears with your oral cavity). As you can’t properly judge your timbre that way, the vibrations and other sensations

you can feel in your body can be very helpful in reproducing a certain timbre.

Hand behind your ear

To increase the amount of sound that reaches your outer ears, simply cup your hands behind them — though this will help just a bit. If you really want to find out how your voice sounds to others, you'll have to record it. These recordings will provide valuable feedback, but they won't help you to control or adjust your timbre as you sing.

Inner ear

You can improve your control over your timbre by training your 'inner ear.' When you really get to know your voice, the sound you hear from within can tell you whether you sound good, or whether you need to make adjustments, and so on.

Plugging your ears

Some teachers even advise that you practice using your inner ear by singing with your ears plugged. This helps to get you familiar with your voice as you hear it from the inside, so you can rely on that information in certain situations.

TIP



Bad monitoring

Holding one or both ears can also be helpful when you're singing amplified and you can't hear yourself due to bad or insufficient monitoring. Of course, this is a stop-gap solution.

THE SINGER'S FORMANT

The fact that opera singers can sing over a hundred-piece orchestra has nothing to do with volume. It's all a matter of resonance. And so is creating a perfect, classical timbre.

Classical and non-classical

The following section is mainly of interest to classical singers, but subheadings identify areas of interest to non-classical singers too.

Singing strings

If you have a piano at hand, open the lid, press the right pedal down, and sing an *ah* into the piano. If you listen carefully, you'll hear that the strings will sound an *ah*. Now sing an *e*, an *o*, or any other vowel. The strings will duplicate your vowels almost perfectly.

Very similar

How this works is pretty straightforward: Each vowel is formed by a combination of harmonics, overtones or frequencies.

When you sing a vowel into an open piano, its frequencies trigger the corresponding frequencies of the strings. The strings, in turn, produce a very similar sound.

Formants

In the mouth and throat cavity, the main resonators of your voice, there are five areas of resonance that are crucial in forming the vowels. These *formants* or *formant areas* amplify the specific frequencies for each vowel.

Speak or sing

When you speak or sing, you change the shape of your resonator to form vowels, consonants, and other sounds, and you activate the relevant formants unconsciously.

Formant tuning

Classical singers go one important step further. They are trained to make full use of the formants by matching them to the overtones of the fundamental notes they're singing. This is known as *formant tuning*.

Free amplification

If you're capable of making this match, the formants offer 'free amplification' of your voice. They add clarity and brightness to your sound and make it project.

Adapt your vowels

Formant tuning often requires you to change the (overtone) frequencies of your vowels in order to make the match with the formants. You do so by adapting your pronunciation, for example by making a wide *ah* a bit less wide, or by making an *ee* a bit brighter.

Singer's formant

The fact that opera singers can sing over a hundred-piece orchestra has a lot to do with the free amplification that formants offer: Opera singers cluster the third, fourth and fifth formants to produce a very strong, ringing frequency known as the *singer's formant* or the *ring of the voice*. It is that frequency that helps them project over an orchestra: not volume, but overtones with a very strong resonance. The frequency of the singer's formant is usually said to be around 2,400–3,000Hz.

Practice

Can you develop or train the singer's formant? Some experts say anybody can; others say you can only develop it if you happen to 'have' it, referring to certain physical aspects (e.g., a specific shape of the *epiglottis*).

Men and women?

Some experts say that only men have a singer's formant, and that female classical singers use formant tuning to the same effect. Others say that women do have a singer's formant, but only in their lower range, up to E5. At higher pitches, the human voice doesn't produce enough overtones to create a singer's formant.

TIP**Non-classical singers?**

Can non-classical singers use the singer's formant too? Some say they could, but the resulting timbre would be undeniably classical. Others say every good singer has this quality to a certain extent, and yet others say non-classical singers just don't.

Non-classical singers

The main thing, in this context, is that the frequency range of the singer's formant is obviously crucial to the human voice. That goes for non-classical singing too: Many vocal microphones have a higher sensitivity in this range, giving your voice an extra boost. And if you have a hard time hearing yourself through your monitor speakers, don't ask the sound engineer to turn the volume up, but to boost the 2,400–3,000Hz range a little instead!

More about formants

There's a lot more to say about formants and the singer's formant, but most goes beyond the framework of this book. It may be nice to know, though, that the first formant (F1) helps amplify overtones in the frequency range up to a 1,000Hz. You can adapt its exact frequency by moving your jaw up and down (according to some experts), or by lowering or raising your larynx (according to other experts), or both (a third group of experts...). The frequency range for the second formant (F2), which is said to respond to the position and shape of your tongue, is 1,000–2,000Hz. These first two are the main formants for the pronunciation of vowels. The other three formants cover higher frequency ranges.

Formants, timbre, placement

If you compare the two preceding sections (Resonance, page 54; Formants, page 62), you may find that they both deal with the same subject. Formant tuning, after all, involves adjusting your articulators so that certain frequencies can match and amplify each other. Adjusting your articulators changes the shape of your resonator. This influences overtone intensities, and thus resonances, and therefore your timbre, possibly producing vibrations or other sensations in your body or your head, which by some is seen as placing your voice in a different way.

VOLUME

The human voice can sound extremely loud, but you can sing

or speak very softly as well. In other words: The vocal instrument has a very large *dynamic range*. Larger than many musical instruments, in fact.

Not volume...

Well-trained singers and singers with very powerful voices can easily produce as much sound as a piano, or even a drum set. However, singers hardly ever rely just on sheer volume to make themselves audible.



... but projection or amplification

Classical singers learn to project their voices, and projection has to do with resonance, not volume (see page 63). Non-classical singers simply use a microphone and have their voices amplified, so even the smallest voice can fill a stadium.

Big or small

Some people can generate more sound than others. That doesn't make them better singers; they just have bigger voices. The 'size' of your voice isn't that important, though it can limit the number of styles of music you can be successful in. Some types of music require big voices and may be detrimental for small voices, for example, but there are many songs that sound better with a small voice.

Dynamics

You can improve your singing by extending your control over your dynamic range. This means that you learn to make full use of your maximum volume potential, so you can sing as loud as you can

TIP



Belting

One well-known technique that allows you to sing loudly, high notes without hurting your voice is known as belting. There's more on belting on pages 95–96, and in Chapter 7.

without hurting your voice, or sing really softly without sounding breathy or losing your voice.

Breath support

Breath support (see page 42) is essential for singing both loudly and softly. You need to generate a powerful air stream to sing loudly, and you need breath support so as not to spill it all in one word. If you sing softly, you need breath support to prevent your air supply from flowing out without pinching your throat.

Volume and timbre

Most wind instruments sound smooth and warm when played softly. Playing louder makes the sound fuller and bigger; if played even louder it can get harsh and eventually break up. Your voice, which functions essentially as a wind instrument, tends to do the same.

Louder — but don't scream

Learning to sing well includes learning to control your timbre over your entire dynamic range. Of course, your timbre changes as you start to sing louder, but it shouldn't sound like someone else is taking over, nor should it sound like you're screaming. Likewise, your voice should stay clear and full as you start to sing softer, and it shouldn't turn into a whisper right away.

Messa di voce

There's a famous exercise for developing control over volume and timbre, known as messa di voce. Pitch control and breath support also benefit from this exercise. In basic terms, messa di voce involves breathing in once and singing a single vowel in that same breath, starting very softly, gradually growing louder, and then back, maintaining the desired timbre and the original pitch. Despite its classical Italian name, this is a great exercise for non-classical singers too. Being able to sing any note in your range at various volumes makes you a more expressive vocalist.



Volume and pitch

Learning to sing well is also about matching volume and pitch. Many singers tend to get louder as they sing higher notes, and vice versa: Your lowest notes do not allow for much volume. Just sing your lowest note and try to make it sound loud, and you'll see what happens.

TIPCODE**Tipcode VOCALS-011**

This is what messa di voce sounds like: Singing a single vowel, starting very softly, gradually growing louder, and back.

IN TUNE

If you have trouble singing in tune, the information on the next few pages may offer you some helpful hints. If you don't, you may skip this section: Being too conscious of what singing in tune is all about can easily make you sing out of tune...

Afraid

Most people who say they can't sing, say so because they're afraid to sing out of tune. And when you are afraid, you probably *will* sing out of tune.

Tone deaf?

People who really have trouble singing in tune are often considered to be *tone deaf*. Strictly speaking, however, there's no such thing as tone deafness. First of all, 'tone deaf' people are often perfectly able to tell a wrong note from a right note. Secondly, as you can only recognize vowels because of their specific harmonics, 'tone deaf' people wouldn't be able to hear what you say either — but

they do. So as some experts say, tone deafness doesn't exist, but anxiety to sing in tune certainly does. Learning to sing in tune can be mainly a matter of reducing anxiety.

Other things

To learn to sing in tune, it is important to learn to focus on things other than hitting the right note. Teachers have access to a wide variety of exercises and techniques to help you sing in tune. *Ear training* is a key subject, teaching you to hear and feel pitches and pitch differences. Breath support is equally important, as it allows you to maintain a certain pitch. Also, you may have to learn to imagine the note in your head before you actually sing it.

Flat, sharp, can't hit, can't sustain...

Some people always sing too low (*flat*); others sing too high (*sharp*). Some aspiring singers can't hit a certain pitch; others can hit it, but don't succeed in sustaining it. You can sing out of tune because you're untrained; because you have a hearing deficiency or a lack of breath support; because you are unfocused or hungry, or because you're singing notes that don't fit your range... What can make singing in tune so hard, and what can you do to make it easier?

By yourself

Singing in tune is quite hard if you sing by yourself, without the accompaniment of an instrument that you can relate your notes to. If you sing without any accompaniment, you can only relate your next note to the one you're singing.



Even a very basic keyboard... (Casio)

Vocal trainer
(Roland)

Keyboards and vocal trainers

That's why using a keyboard, a guitar, or another instrument can be very helpful in your vocal practice: It helps you hit and sustain your notes. Also check out software and apps that help you sing in tune, try so-called vocal trainers, or use pre-recorded music as a reference.



In a choir

Singing in tune is probably easiest in a choir: Most people tend to automatically 'copy' the pitch they're hearing. Besides, if the choir is big enough (and your voice is small enough), you may even sing a bit out of tune without anyone noticing.

Accepted

Some experts insist that the vocal instrument is almost incapable of sounding perfectly in tune. That's nothing to worry about, though. For some reason, minor pitch deviations of the singing voice are much more acceptable than out-of-tune pianos, guitars, or other instruments. The singer's 'automatic' vibrato probably has something to do with this (see page 80).

Too low, too high

In non-classical music, there are quite a lot of famous vocalists who hardly ever sing in tune. Many popular singers in rock, pop, jazz, Latin, and other styles seem to sing just a bit too low, often with a somewhat husky, subdued timbre. Others tend to sing a tad sharp all the time. These deviations wouldn't be accepted in classical singing, but they are in most non-classical styles. In part, this is because the performance, the lyrics, and the emotions of the vocalist tend to overshadow the importance of singing in perfect pitch. Singing consistently flat or sharp can even be a personal and musically appealing trademark.

Perfect

If you realize that you have to tune your voice for every single note you sing, it's almost a miracle that people can sing in tune at all. Here is how it works: A split second before you sing a note,

your multi-muscle-operated vocal folds adjust to the tension that's required for the exact pitch you're after. This adjustment is known as *prephonatory tuning*. To make this work, you do of course need to 'know' the pitch you want to produce, and your vocal folds have to adjust accordingly.

Bending up or down

Without prephonatory tuning, you would have to correct each note as you sing it. Untrained singers sometimes sing that way: They just start singing a note at a certain pitch, and bend it up or down until it sounds right to them (which is no guarantee that it really is).

Fall-off

Bending the pitch isn't always a sign of bad singing, though. In various styles, singers consciously use pitch bends as an effect, either bending the note up or down to the intended pitch, or way down at the end of a phrase (known as a *fall-off*). Wind instrument players, guitarists, and other instrumentalists use similar ornamentations.



Tipcode VOCALS-012

In this Tipcode, Angela demonstrates how you can bend pitches up or down.

TIPCODE



Ear training

To be able to hit a note at the right pitch, you need to know what that pitch is. If this is difficult, ear training and other exercises may be of help. Note that some singers tend to sing higher notes too high, and lower notes too low; others hardly seem to know where to find the next note at all. There are several do-it-yourself ear-training programs available (CDs, software, apps, online),

but only a good teacher can help you select the exercises that are designed to solve your specific problem.

Concentration

Singing in tune also demands focus and concentration: After all, you need to ‘tune’ your instrument for every single note.

Too much

Strange as it seems, concentrating too much on singing in tune can easily make you sing out of tune. It’s a bit like trying not to think of pink elephants: If someone tells you to, you probably can’t. Rather than focus on pitch alone, try to work on anticipating the note you’re going to sing, and work on other aspects of your vocal technique.

Hit and drop

Other singers have no problem hitting the right pitch at once, but they can’t sustain it: The pitch drops or rises as they hold the note. This can usually be solved by improving breath support (see page 42). Lack of focus can also result in unsteady pitch: You have to stay with the tone as you sing it, not just throw it out and let it go.

TIP



Areas

There also may be areas in your range where you tend to sing more out of tune than others. Concentrating on these areas and giving them more focus may be all you need to do.

Out of your range

If you have problems singing the highest or lowest notes of a song in tune, you may want to transpose the song, changing its key. Problems hitting the highest notes? Transposing the song to a lower key may solve the problem. Can’t reach the lowest notes? Make the entire song higher in pitch by transposing it to a higher key. Likewise, many art songs (*Lieder*) are available in various keys.

Hard or harder

Guitarists and other instrumentalists may not be really happy if you want to change the key of a song. Transposing it can make it harder to play for them — requiring less common fingerings, for example. Having to sing notes at the extremes of your range is usually even harder, though.

Another timbre

Singing a song in another key not only makes a song sound lower or higher. It also changes its timbre a bit: Every key has its own character.

Food

Some singers find it harder to sing in tune too long or too soon after having enjoyed a meal. Eating right before or too long before a performance can affect your singing in other ways too (see pages 115 and 127).

Headphones

To be able to sing in tune, you need to be able to hear yourself properly. That explains why it's impossible to sing along to a track that you listen to through a pair of headphones. Likewise, if you sing using any kind of amplification, it is crucial that you can hear yourself. If you don't, you'll have problems. There's one trick that can temporarily solve the problem: If you close one or both ears, you can hear your voice from inside, even if there is a lot of noise around you.

Monitor speakers

If you sing with a band, using a microphone, you'll probably need one or more monitor speakers or a set of in-ear monitors in order to hear yourself. Setting their volume is critical. If they're too loud, chances are that you'll still sing out of tune.

Turn it up

Instead of turning the monitor volume up if you can't hear yourself, it's better to ask the engineer to turn up the 800–1,400Hz or 3,000Hz range a bit (see page 65). Lowering the volume level of the other instruments or monitors you're hearing can help too.

Pitch correction

To help out singers who can't sing in tune at all, or to correct the odd out-of-tune note for singers who can, there's equipment and software that can actually make pitch corrections in real time, as you sing (see page 162)! Correcting pitch in a recording is even less of a problem. Most audio editing software can do that for you.

ARTICULATION

Articulation a confusing term. In the following section, it is used for the way you 'shape' and link individual letters. You do so using your active articulators: lips, lower jaw, tongue, and soft palate.

Timbre

The term articulation is also used to refer to timbre, as described on page 54. After all, both timbre and vowels are the sonic result of the overtones or harmonics you produce by using your articulators.

Pronunciation

You can articulate very well even with a terrible pronunciation. In this book, the term 'pronunciation' is reserved for making words sound the way they should in the language or dialect you're singing in, as discussed in Chapter 9, *Lyrics*.

Diction

Sometimes, the word *diction* is used to indicate the combined result of articulation (how you shape and combine letters in speech or music) and pronunciation (how your words sound).

Inarticulate

If you don't articulate well, if you sing 'under your breath' or 'between your teeth,' you'll have a hard time getting your lyrics across. You'll sound indistinct and, yes, *inarticulate*.

Tension

Sometimes, singers tend to use a lot of tension to articulate well,

and tension doesn't help your singing. Articulation exercises are designed to help you speak and sing clearly and understandably, using a minimum amount of tension.

The basics

To understand the basics of articulation, it's good to know a bit more about vowels and consonants, and about how you produce them.

Vowels

The alphabet has just a few vowels, but there are many ways to pronounce them, each one requiring a different articulation. Just listen to the *a* in the words *lame*, *mall*, *rather*, *damage*, and *any*. In other languages there are even more ways to articulate this vowel. The French pronounce the wide open *a* in *amour* (love) the same way as the Germans pronounce that letter twice in *Aria*.

Different vowels, same sound

The reverse is quite common too: There are some differently written vowels and vowel combinations that require an identical articulation. Just listen to the *e* sound in the words *he* [e], *believe* [ie], *tea* [ea], *key* [ey], and *machine* [i] and notice their very different spellings.

Tongue and lips

Articulating all the various vowel sounds is mainly a matter of raising different areas of your tongue and assuming various lip positions. For example, to articulate the *ee* in *meet*, you bring the front part of your tongue close to the palate. The *e* in *bed* is articulated raising the middle of your tongue, and when you articulate the *a* in *rather* your tongue is low. The *a* is known as a low vowel; the *e* [i] is an example of a high vowel.

Diagrams

If you want to know more about tongue positions for vowels, simply search for those words online. You'll find both articles and diagrams on the subject.



Tire: one
vowel, three
sounds

Diphthongs

In some syllables, you need to glide from one vowel sound to the next. Listen to the words *glide*, *hour* and *toy*, for example. This is known as a *diphthong*.

Triphthongs

A *triphthong* is a combination of three vowel sounds in one syllable, and sometimes even in one single character: the *i* in *tire*. A low tongue at first, raising it in the middle of the syllable, and moving it toward the back when approaching the R.



Consonants

Vowels require an uninterrupted, open air flow. Most consonants require you to interrupt the air flow (e.g., P), or to restrict it (e.g., S). You can do so in various ways and at various places in your vocal tract; that's what makes for the variety of sounds. Different categories have been created to catalog the various types of consonants; the listings below are not intended to be complete.

Lips, teeth, velum, glottis

One group of categories indicates where you interrupt or reduce the air flow.

- *Bilabials* ('two lips') are consonants that require closing your lips (M), or closing and opening them: B, P.
- *Labiodentals* are made using a lip and your teeth: F, V.
- *Alveolars* require you to stop or reduce the air stream with your tongue against the sockets of your teeth (your alveoli): Z, T, S, D. Alveolars are also known as *linguadentals*; *lingua* is Latin for tongue.
- *Interdentals* are articulated using your tongue as well as your upper and lower teeth (*though*).
- *Velar consonants* require you to lower and then raise your velum or soft palate: go, can.
- *Glottal consonants* use the opening between the vocal folds: H.

Plosives, glides, and nasals

Other categories refer to the way the consonant is articulated.

- *Plosives* or *stop-plosives* are articulated as small explosions: You build up air pressure and then let it go, by opening your lips (bilabials: B, P), by taking your tongue off of your teeth (alveolars: D, T), or by raising your velum and lowering the back of your tongue (go).
- *Fricatives* are articulated by letting air out through a very small opening, creating a lot of *friction* or turbulence. You can do this with your lips and teeth (labiodentals), with your tongue against the sockets of your teeth (alveolars), or with your vocal folds.
- An *affricative* is a plosive followed by a fricative (*challenge*, *judge*).
- *Nasals* use your nose. Blocking your nose stops the sound. The ‘ng’ sound in the word *singing* is a good example.
- *Laterals* are produced by letting air pass by on one or both (lateral) sides of the tongue: L.
- The L is also categorized as a *liquid consonant*, just like the R. They’re produced by a rather delicate contact between tongue and mouth.
- *Glides* just glide, like the wind.

Voiced and voiceless

You can also distinguish between consonants that use the vocal folds (*voiced consonants*: B, D, G, J, L, M, N, R, V, Z) and the ones that don’t (*voiceless* or *unvoiced consonants*: P, F, S, T).

The main difference

With some pairs of consonants, the usage of the vocal folds is the main difference: the voiced V and the voiceless F; the voiced Z and the voiceless S, and so on.

TIP



Many more

There are many more categories and differentiations that break down the numerous different consonant and vowel sounds humans can produce, in English and in hundreds of other languages.

Impossible

Many of the sounds produced in other languages are very hard if not impossible to articulate for most American (and many other) singers. This is because of the way you're trained to use your articulators, as well as what you're used to hearing.

If your language doesn't contain a certain sound, you're likely to be unable to pronounce it simply because you don't recognize it — and not because you have a different vocal instrument. See the section on pronunciation in Chapter 9 for more information.

ONSET OR ATTACK

The *onset* or *attack* refers to the way you initiate vowels and other sounds. Most classical singers seem to use the word onset, while non-classical singers say attack. The ending of a tone, a word, or another sound is known as the *release*.

A plosive a

When people say the word 'absolutely,' for example, you'll often hear a short click sound at the very beginning of the first letter of that word. This is very much like a plosive, yet one that's created with the vocal folds.

Glottal attack

What happens is the following: To articulate a word that begins with a vowel, most people tend to close the opening between the vocal folds (the glottis) rather firmly. Then they build up pressure from the lungs until the vocal folds separate with an explosive click. This is known as *glottal attack* or *glottal initiation*.

Like coughing

In most styles of singing the glottal attack is not appreciated. In recording situations, the explosive clicks can be a real hassle. The glottal attack is often said to be potentially harmful for your vocal health, as forcefully driving the vocal folds apart can result in various symptoms. It's actually just like coughing, which can be considered an extreme form of glottal attack (see page 118). On the other hand, the glottal attack or *coup de glotte* is an essential element in accenting words in German *Lied* (art song) singing, for example.

Breathy attack

To avoid the glottal attack, you can add an almost soundless *h* at the beginning of the word: 'h'absolutely. Such an *aspirated onset* or *breathy attack* can produce an all-over breathy timbre, however.

Clean attack

The third way to initiate a vowel is usually considered the best: It's the *clean attack* or *simultaneous attack*, which requires the air flow to arrive at the vocal folds at the very moment you close your glottis. This prevents clicks and breathiness.

Two more names

The clean attack or clean onset is also known as *coordinated attack*: It demands coordination of your air flow and your vocal folds. Yet another term is *diaphragmatic attack*, as it involves control of your diaphragm — breath support, in other words. The fifth term is *sung attack*: You can only do it when you sing.

Release

Similar things happen at the end of a word, a tone, or a sound. You can slam your vocal folds shut (*stopped release* or *glottal stop*),

Grunt

Pronouncing a vowel with a guttural grunt or bite is known as a scraped attack. This can be excruciating for your vocal folds. However, when well placed, it may sound quite nice as an effect.



which may at one point damage them. You can also end a word and stop the sound but continue to let air escape (*breathy release*). The best way to end a word, according to many, is the *clean release*. You stop the sound by opening your glottis, and you control your diaphragm to prevent more air from rushing out.

VIBRATO

When you sing a long note, your tone is probably not straight; the pitch goes up and down a bit all the time. This is known as *vibrato*: slight pitch fluctuations that are usually said to make for a richer, warmer, and more colorful sound. Your vibrato is often considered a very important aspect of your personal timbre too.

Natural

When you sing, your larynx or voice box lightly dances up and down on your air stream. This is what's commonly thought to produce the vibrato. Singing with a straight, steady tone, without vibrato, requires effort and training, as you learn to keep your larynx still. Singing with vibrato comes naturally, in most cases.

Many ways

If you listen to a number of singing styles from different eras and cultures, you'll find that there are many ways to use vibrato, or to avoid it.

Most singers

In classical music, the standards for a 'good vibrato' are much tighter than in most other Western styles of singing — but learning to control your vibrato is something most singers, in any style, can benefit from.

Your voice box

Controlling the vibrato seems to be mainly a matter of controlling the subtle vertical movements of the voice box. If it moves up and down too wildly, you won't be able to produce a steady tone at all.

Good vibrato

A good vibrato is usually said to have around six or seven pitch fluctuations per second (6–7 Hz). At that speed, your vocal muscles seem to have an easy, comfortable balance without any unnecessary tension. The pitch should go up and down about a quarter to maybe a third of a step.

**Tipcode VOCALS-013**

A brief demonstration of a classical vibrato.

**Too slow**

A vibrato that fluctuates too slowly often tends to deviate from the original pitch too much. This out-of-tune effect is referred to as a *wobble*.

Too fast

A vibrato that's too fast, fluctuating at more than seven or eight Hertz, doesn't sound like a vibrato anymore. Vocalists usually call this a tremolo. (Instrumentalists use that term to indicate the fast repetition of a single note.)

Louder, softer

The term tremolo is also used to indicate a rhythmic fluctuation in volume level, getting slightly softer and louder as you sing. To make things even more confusing, others (incorrectly) call this effect vibrato. Commonly, however, the slight variations in loudness are considered to be part of the 'natural' vibrato, and you're bound to hear both types of fluctuations in many voices, both trained and untrained.

Boring vibrato

A pleasing vibrato usually has different frequencies; a prominent vibrato using the same frequency all the time may soon become boring to the listener. One singer whose vibrato is too prominent can impose a similar effect on an entire choir. In choir singing, the voices have to blend — so the vibratos have to match.

No vibrato

Various musical styles require singing without a vibrato, one example being Eastern European choral singing. European Baroque and Renaissance vocalists are often said to have sung without vibrato too. Non-vibrato singing is also required in various contemporary classical pieces, and a flat, straight tone is sometimes used to accentuate a shallow, unexpressive, or cold-hearted character in an opera, or to lend a specific character to certain lyrics or melodies.

Eastern European
choral singing:
Le Mystère des
Voix Bulgares



The Tipbook Series

Did you like this Tipbook? There are Tipbooks for your fellow band or orchestra members too! The series features books on musical instruments, including the singing voice, in addition to Tipbook Music on Paper and eTipbook Music for Kids and Teens.

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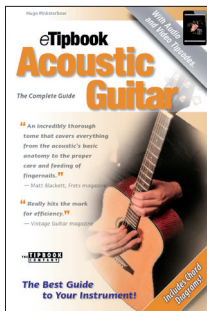
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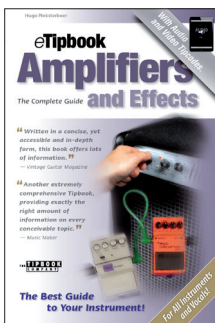
Instrument Tipbooks

All instrument Tipbooks offer a wealth of highly accessible, yet well-founded information on one or more closely related instruments. The core chapters of these books turn you into an instant expert on the instrument. This knowledge allows you to make an informed purchase and get the most out of your instrument. Comprehensive chapters on maintenance, intonation, and tuning are also included, as well as a brief section on the history, the family, and the production of the instrument.



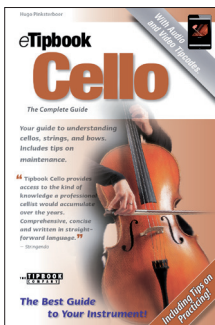
Tipbook Acoustic Guitar

Tipbook Acoustic Guitar explains all of the elements that allow you to recognize and judge a guitar's timbre, performance, and playability, focusing on both steel-string and nylon-string instruments. There are chapters covering the various types of strings and their characteristics, and there's plenty of helpful information on changing and cleaning strings, on tuning and maintenance, and even on the care of your fingernails.



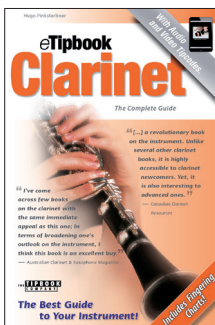
Tipbook Amplifiers and Effects

Whether you need a guitar amp, a sound system, a multi-effects unit for a bass guitar, or a keyboard amplifier, *Tipbook Amplifiers and Effects* helps you to make a good choice. Two chapters explain general features (controls, equalizers, speakers, MIDI, etc.) and figures (watts, ohms, impedance, etc.), and further chapters cover the specifics of guitar amps, bass amps, keyboard amps, acoustic amps, and sound systems. Effects and effect units are dealt with in detail, and there are also chapters on microphones and pickups, and cables and wireless systems.



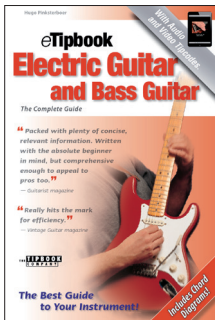
Tipbook Cello

Cellists can find everything they need to know about their instrument in *Tipbook Cello*. The book gives you tips on how to select an instrument and choose a bow, tells you all about the various types of strings and rosins, and gives you helpful tips on the maintenance and tuning of your instrument. Basic information on electric cellos is included as well!



Tipbook Clarinet

Tipbook Clarinet sheds light on every element of this fascinating instrument. The knowledge presented in this guide makes trying out and selecting a clarinet much easier, and it turns you into an instant expert on offset and in-line trill keys, rounded or French-style keys, and all other aspects of the instrument. Special chapters are devoted to reeds (selecting, testing, and adjusting reeds), mouthpieces and ligatures, and maintenance.

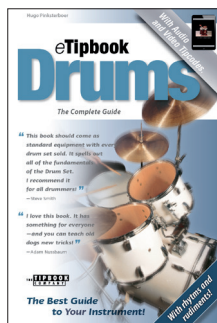


Tipbook Electric Guitar and Bass Guitar

Electric guitars and bass guitars come in many shapes and sizes. *Tipbook Electric Guitar and Bass Guitar* explains all of their features and characteristics, from neck profiles, frets, and types of wood to different types of pickups, tuning machines, and — of course — strings. Tuning and advanced do-it-yourself intonation techniques are included.

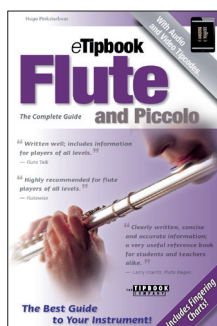
Tipbook Drums

A drum is a drum is a drum? Not true — and *Tipbook Drums* tells you all the ins and outs of their differences, from the type of wood to the dimensions of the shell, the shape of the bearing edge, and the drum's hardware. Special chapters discuss selecting drum sticks, drum heads, and cymbals. Tuning and muffling, two techniques a drummer must master to make the instrument sound as good as it can, are covered in detail, providing step-by-step instructions.



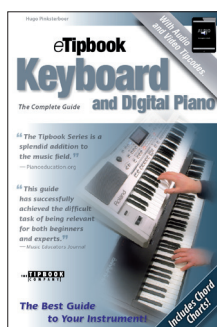
Tipbook Flute and Piccolo

Flute prices range from a few hundred to fifty thousand dollars and more. *Tipbook Flute and Piccolo* tells you how workmanship, materials, and other elements make for instruments with vastly different prices, and teaches you how to find the instrument that best suits your needs. Open-hole or closed-hole keys, a B-foot or a C-foot, split-E or donut, inline or offset G? You'll be able to answer all these questions — and more — after reading this guide.



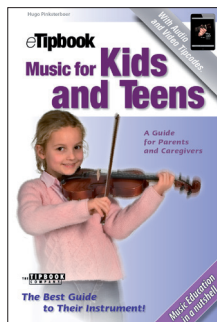
Tipbook Keyboard and Digital Piano

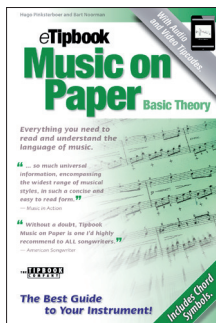
Tipbook Keyboard and Digital Piano explains digital lingo in a very easy-to-read fashion — from hammer action and non-weighted keys to MIDI, layers and splits, arpeggiators and sequencers, expression pedals and multi-switches, and more, including special chapters on how to judge the instrument's sound, accompaniment systems, and more.



Tipbook Music for Kids and Teens

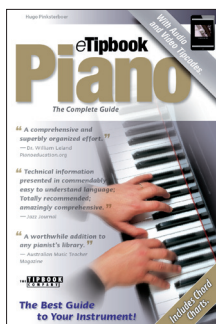
How do you inspire children to play music? How do you inspire them to practice? What can you do to help them select an instrument, to reduce stage fright, or to practice effectively? What can you do to make practice fun? How do you reduce sound levels and prevent hearing damage? These and many more questions are dealt with in *Tipbook Music for Kids and Teens – a Guide for Parents and Caregivers*. The book addresses all subjects related to the musical education of children from pre-birth to pre-adulthood.





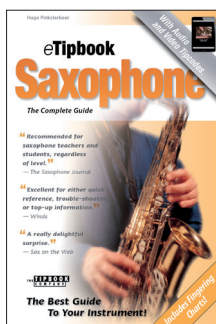
Tipbook Music on Paper

Tipbook Music on Paper – Basic Theory offers everything you need to read and understand the language of music. The book presumes no prior understanding of theory and begins with the basics, explaining standard notation, but moves on to advanced topics such as odd time signatures and transposing music in a fashion that makes things really easy to understand.



Tipbook Piano

Tipbook Piano makes for a better understanding of this complex, expensive instrument without going into too much detail. How to judge and compare piano keyboards and pedals, the influence of the instrument's dimensions, different types of cabinets, auditioning pianos, the difference between laminated and solid wood soundboards, accessories, and why tuning and regulation are so important: Everything is covered in this handy guide.



Tipbook Saxophone

At first glance, all alto saxophones look alike. And all tenor saxophones do too — yet they all play and sound different from each other. *Tipbook Saxophone* discusses the instrument in detail, explaining the key system and the use of additional keys, the different types of pads, corks, and springs, mouthpieces and how they influence timbre and playability, reeds (and how to adjust them) and much more. Fingering charts are included!

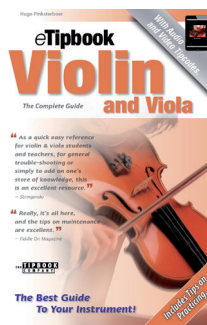


Tipbook Trumpet and Trombone, Flugelhorn and Cornet

The Tipbook on brass instruments focuses on the smaller horns listed in the title. It explains all of the jargon you come across when you're out to buy or rent an instrument, from bell material to the shape of the bore, the leadpipe, valves and valve slides, and all other elements of the horn. Mouthpieces, a crucial choice for the sound and playability of all brasswinds, are covered in a separate chapter.

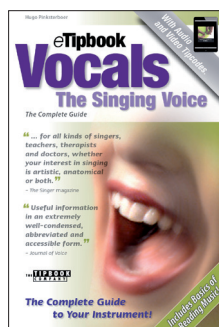
Tipbook Violin and Viola

Tipbook Violin and Viola covers a wide range of subjects, ranging from an explanation of different types of tuning pegs, fine tuners, and tailpieces, to how body dimensions and the bridge may influence the instrument's timbre. Tips on trying out instruments and bows are included. Special chapters are devoted to the characteristics of different types of strings, bows, and rosins, allowing you to get the most out of your instrument.



Tipbook Vocals – The Singing Voice

Tipbook Vocals –The Singing Voice helps you realize the full potential of your singing voice. The book, written in close collaboration with classical and non-classical singers and teachers, allows you to discover the world's most personal and precious instrument without reminding you of anatomy class. Topics include breathing and breath support, singing loudly without hurting your voice, singing in tune, the timbre of your voice, articulation, registers and ranges, memorizing lyrics, and more. The main purpose of the chapter on voice care is to prevent problems.



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