

THE NEW SCIENCE OF SINGING

**THE THREE
SCIENCE
CONCEPTS**

**EVERY SINGER
MUST KNOW**

Why Vocal Science?

Hi, my name is John Henny and I want to welcome you to the fascinating world of vocal science

Vocal science is a vast subject that you could spend years learning about.

The good news is we don't have to become scientists to be good singers

There are a few key concepts that will give us more knowledge and control over our singing voices.

FIRST LET'S LEARN

**How
The Voice
Works**

Your voice has three main parts or functions

Air

Vocal Cord
Closure

Resonance

Let's look at what each of these functions do in the singing voice

Air

This is what sets everything in motion

Air from your lungs is set in motion by first breathing in and then sending this air upwards towards the vocal cords

Vocal Cord Closure

In order to make sound, your vocal cords must close against the rising airflow from your lungs

The more you close your cords against this airflow, the greater the building pressure underneath them to create the sound wave

However, it is very easy to overdue the air and cord closure, which you have probably felt when shouting or straining while singing

Resonance

This is one of the key components of singing

Resonance acts as an amplifier for your vocal sound waves, and gives you your unique voice

The resonance occurs in your throat and mouth, and the best way to shape and control the resonance is through vowel adjustments

Our Three Science Concepts

TA

CQ

FR

???

TA, CQ and FR, what's
that?

TA, CQ and FR are the common abbreviations of the terms we
are going to study

You will often see them referred to by these abbreviations in
article and books

Let's take them one at a time

1. The TA Muscle

This is a pair of muscles that are part of your vocal cords, fully known as the Thyro-Arytenoid Muscles

They tense up and increase tension and also make the cords fatter

This helps the cords "bulk up" to resist the air that is being sent from the lungs

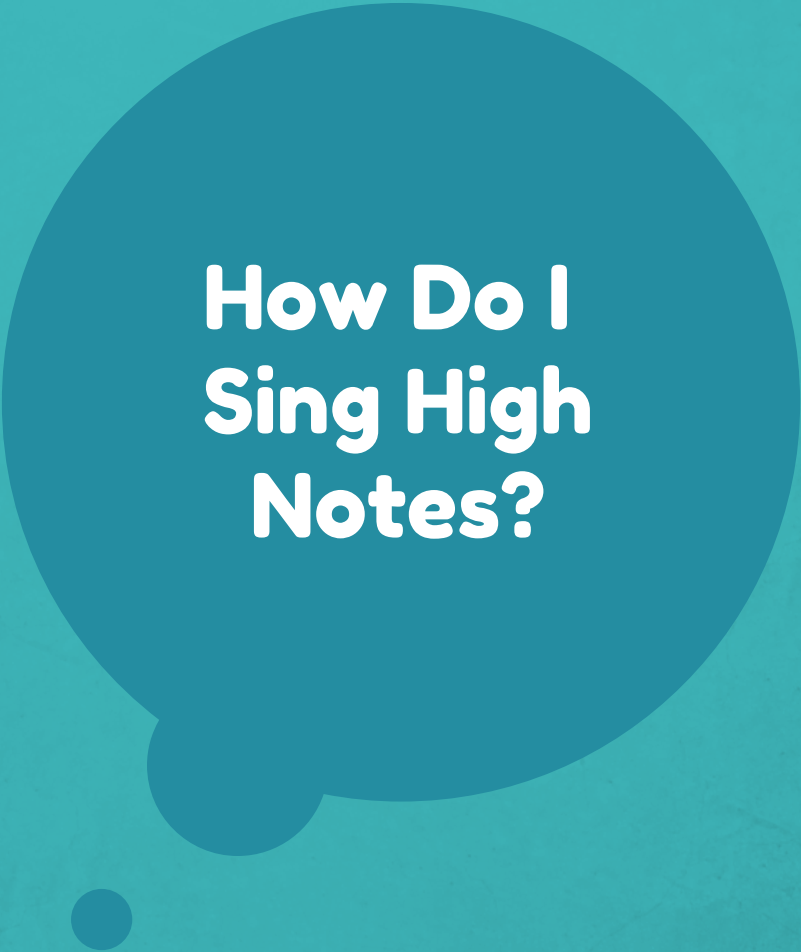


The TA muscles do a great job of helping us in our lower register
and our speaking voice

They also engage to help us shout, which helps us in dangerous
situations

But they start to not do such a great job when we want to sing
high notes!





How Do I Sing High Notes?

In order to hit higher notes, you need to control how much your
TA muscles are involved

You have a second pair of muscles that stretch and thin the cords for higher notes called the CT muscles

If your TA muscles over-engage on the high notes your CT muscles won't be able to stretch the cords enough and you will strain or not even hit the note at all

If your TA muscles don't engage enough the CT muscles will over-thin your cords and you will flip or crack, making your voice suddenly weak

You need to train your TA muscles to be in balance and not over or under compress on the high notes

Many vocal issues come from the singer not having an awareness of the TA muscles and how important they are for balanced singing



2. The CQ or Closed Quotient

The CQ is the amount of time your vocal cords are closed as opposed to open

In order to create a sound wave, your vocal cords must first close against the air rising from your lungs

This creates building pressure and when the cords open the pressure is released as a sound wave

Therefore, creating sound waves is a constant back and forth of your vocal cords closing and opening

The closed quotient is the percentage of time the cords are closed vs open

Basically, the greater the CQ or closed quotient, the more pressure that builds under the vocal cords

Thus a greater CQ means a more intense sound wave
and a smaller CQ means a less intense sound wave

If you are singing breathy then you have a very low CQ, the cords are open most of the time and the very small closed time means not very much pressure builds

If you are singing strongly then the CQ is higher, which means greater pressure
and more energy



So You Might Think A Higher CQ Is Always Better

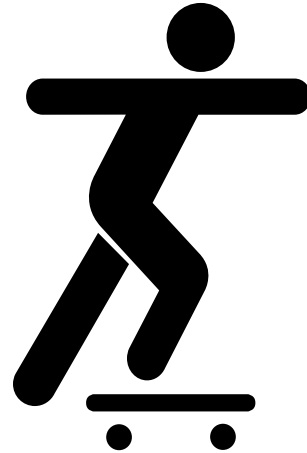


Not Always -You Can Actually Overdo the Closed Quotient

This is called "Pressed Phonation"

**When you over-squeeze the cords with an excessive CQ you
begin to choke off the sound and strain**

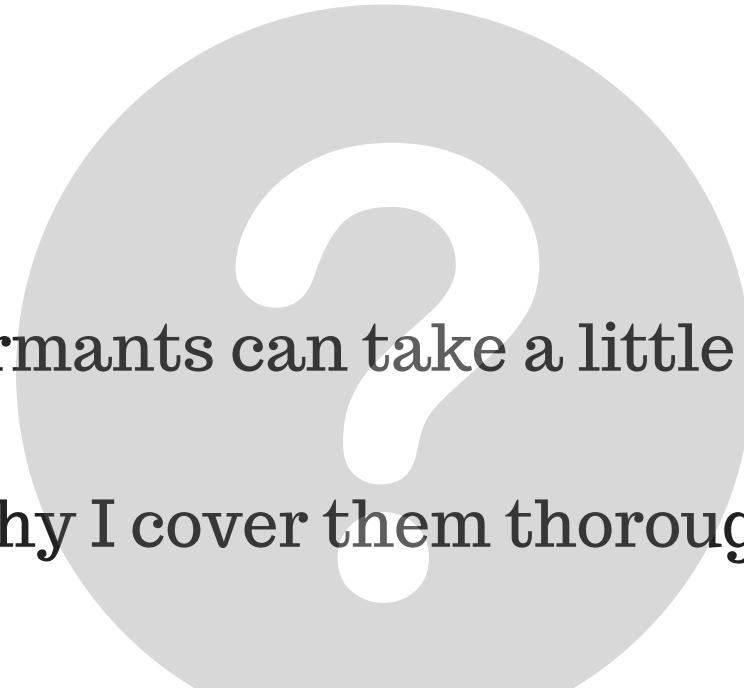
CQ Is A Balance



There will be an optimal CQ for the note and intensity you wish to singing

Good singing requires us to practice controlling our CQ, in order to give us better control of our voice and avoid vocal strain and damage

3. FR or Formants



The concepts of Formants can take a little while to understand

This is why I cover them thoroughly in my

**New Science of Singing
Course**

(that was a slightly shameless plug)

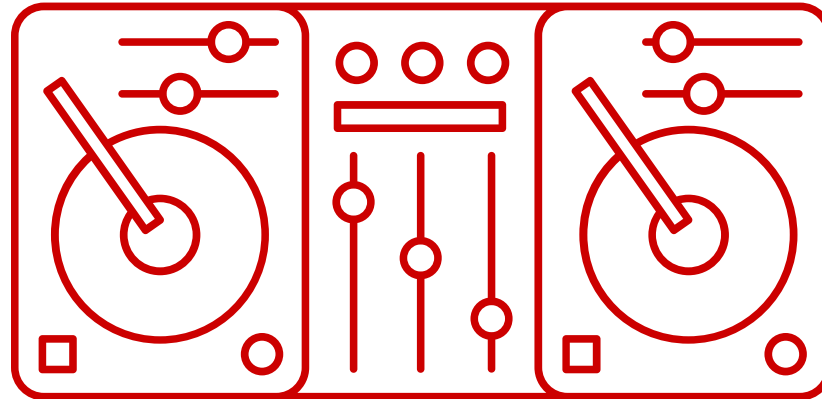
What are Formants?

They are basically resonances in our vocal tract

But what does THAT mean?



Think of a DJ



One of their "tricks" is to take a track and run it through filters that either take out all the bass or all the treble

Even though the information coming from the record or MP3 is the same, the filter can change how we hear it drastically

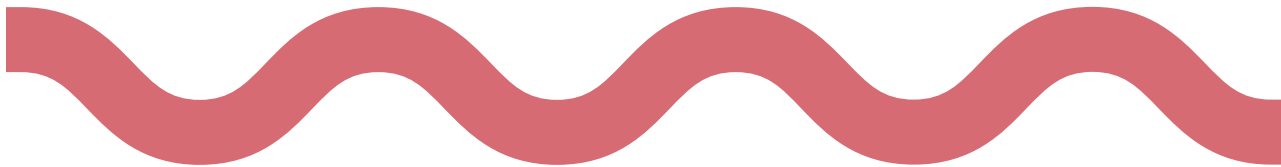
This Is What Vowels

Do

Vowels change how we hear the sound waves coming from our vocal cords

They filter the sound waves, changing how we hear the information

The name scientists give to these filtering changes is Formants



Formants Can Help You Sing

Formants basically make parts of the sound wave louder, sort of like an amplifier

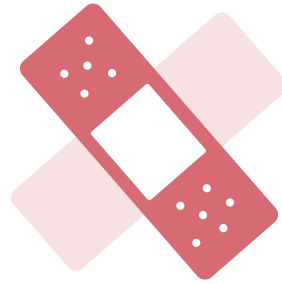


We hear these louder parts as different vowels, or the voice being bright or dark

Try saying AH and then OO

Very different formants, so not only do we get two different vowels but two different shades of tone color, with AH being brighter than OO

Applying Formants to Singing



This subject is deeper than I can get into here, but basically certain formants work better on high notes than others

This creates the concept of vowel modification, or vowel tuning for higher notes

This is probably one of the most important concepts in singing

Vowel Tuning For High Notes

When we change vowels we change formants
(it's ok if you don't totally understand that yet)

Basically, high notes work better on certain vowels

Try singing a higher note on MAH (as in MAT)

Then sing it on MOO

Which is easier?



In most cases, MOO will be easier because the formants align better with the sound wave

All you need to know is that certain vowels work better on higher notes and that we can adjust any vowel to work better

So What Does All This Mean?

It means to be a great singer you need to be in total control of your TA muscles, your Closed Quotient (CQ), and your F'R (formants)

The more you study these concepts and then practice them, the better you will sing with more range, ease, and power



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Where to go

FROM HERE?

I have created a special course designed for singers to learn all about practical vocal science in an easy to understand format

Singers can now gain the knowledge to truly take control of their voices

For more information visit:

www.newscienceofsinging.com