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5 Fundamentals That Will Improve
Your Single Reed Section!

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Air/Tone

Let's all be honest with ourselves, air is the most important part of playing any "wind" instrument. Careful study of how air is produced and transmitted through your instrument will yield amazing results for any teacher, player, or student. What attributes of single reed playing does the air effect? Tone, articulation (quality, clarity, and speed), embouchure, intonation, finger technique, range, musicality/phrasing concerns, the life of your reed, your physical endurance, and more. To be more specific, air effects everything.

How does air effect...

...tone?

Improper air support will most likely produce a "brighter" more brittle tone where we will hear more of the higher overtones in the sound. We can hear the "bite" in the sound. This sound will be difficult to blend in an ensemble. Less Air = More Bite.

...Intonation?

Under developed air support will lead to a higher overall pitch center and less control to alter intonation. Do your clarinet players have to pull excessively at the barrel?

More Air = Less Bite.

...finger technique?

Because the clarinet is essentially a tube that we make shorter and longer to change pitch, each note requires a very specific amount of air pressure/support to function optimally. Setting the airstream so that it can play a "long B" (middle of the staff) at any time is optimal. Often large leaps are difficult for students and more air will often solve these technical issues.

...range?

The altissimo register requires full breath support. Students' range may be limited by nearly an octave or so without full breath support. Often students learn the altissimo register by biting but it is much better in terms of tone, control, and physical health to learn proper air support and bite less.

...embouchure?

More air equals less bite. More air equals less bite. More air equals less bite. If we blow more air through the instrument our bodies naturally bite less and finding the right balance between air and embouchure pressure is essential for single reed playing. Blowing too little air will cause the jaw and embouchure to collapse. A fully supported air column is necessary for proper embouchure development.

...physical endurance?

If we blow more (and bite less) our embouchure lasts longer and we feel less pain. Yes, one will have to work slightly harder in the core of the body, but the results will be seen immediately in endurance. More air equals less bite!

...life of the reed?

More air equals less bite. Our reeds will last longer if we put less strain and pressure on them.

How to use air effectively

Throat Relaxation/Flexibility

Throat relaxation and flexibility while exhaling, inhaling, and playing the clarinet is incredibly important and often overlooked. Many students will unintentionally control the airstream with the throat and play with excess throat tension. Have you heard someone grunt while playing? This is from excess throat tension. It is important to understand that the throat needs to remain flexible for it to move as needed through each tessitura of the instrument. Imagine trying to reach out an open a door knob with all the muscles in your arm completely tense and engaged. Now imagine opening the same door knob with relaxed muscles. Which is easier?

Direct evidence that throat relaxation is an area of importance can be seen when observing a clarinetist playing the “bugle call”. The throat visually appears to open as the tessitura goes higher. When trying the bugle call first cover the bell with your leg by about 90%, finger a low E, and then allow the clarinet to “squeak” and experiment trying to sound 3-5 different notes without moving the fingers. This should be accomplished with air support and throat movement and not by biting. (As a side note: the clarinet and saxophone operate on their own overtone series and understanding how this system works is essential for long term advanced instrumental goals.)

Two great ways to promote throat relaxation is by doing “barrel breathing” and being aware of the “yawn feel”. “Barrel breathing” simply consists of putting the clarinet barrel between the teeth and lips and then breathing deeply in and out. Usually only 2-3 breaths through the barrel are necessary to make an immediate change to one’s playing. I recommend keeping an extra barrel or barrel shaped tube on the music stand. Every ten minutes, or when something isn’t working correctly, do a few barrel breaths. Because we all yawn at some point or another in our lives we are all familiar with this concept. The next time a yawn happens be aware of how relaxed the throat is and how quickly the lungs fill with air. Try to play the instrument with that sense of relaxation in the throat.

How do you hold your breath?

Another important aspect to throat relaxation is the concept of holding your breath.

How do you hold the breath? Try taking a deep breath and hold it. Notice how your body naturally stops the air from coming back out. Was the air stopped by the throat, abdomen, or tongue? As a breathing exercise take a full breath and exhale fully. Take a breath $\frac{1}{2}$ of that size and then exhale. Take another breath $\frac{1}{2}$ of that size and then exhale. Keep doing this until you can no longer tell if you are inhaling or exhaling. How are you holding your breath now?

Inhale and Exhale

Other than throat relaxation there are many other ways in which we need to pay attention in order to optimize our use of air. Make sure to exhale fully through the mouth. This is very simple to do and close attention to emptying the lungs fully will allow them to be filled fully with fresh air. Work to inhale effectively and fully so that the bottom of the lungs are completely full. Remember the ease and quickness of the lungs filling while doing the “barrel breathing” or “yawn” and try to allow the body to do this on every inhale. Including a careful study of inhaling and exhaling into a daily practice routine will greatly increase performance capabilities and instrumental control.

How does it feel to blow?

When producing a sound on the clarinet think of pushing the abdomen out and down rather than squeezing the muscles inward. Squeezing the abdomen inward constricts the throat. Pressing the abdominal down and out relaxes the throat. Compare these two concepts of abdominal support with your speaking voice for direct evidence.

Learning exactly what it should feel like to blow properly on the clarinet is essential and one great way to illustrate this is to “half hole” a low c. The idea is to create more resistance so that the student has to engage the core of the body. Do this by playing a low d and then covering the low c tone hole by one half and then encourage the player to produce the loudest possible volume.

1. Have the student play a low D.
2. Cover the low c tone hole by half.
3. This will produce a muffled and unusual sound. (It is not supposed to sound good so don't worry about that.)
4. The student should feel more resistance and will need to press harder from the abdomen in order to increase the volume.
5. Encourage the student to play with the loudest possible volume and with the lowest possible pitch.

If done correctly, the volume will increase and the pitch will go down. Most students immediately feel the added resistance but the teacher will still need to encourage louder volume through abdominal support and lower pitch by relaxing the bite pressure. Once they get the hang of it students can use this technique to train and remind their bodies what it feels like to blow properly on a clarinet. Use this technique daily.

Tongue Position and Air Pressure

Tongue position directly effects air pressure. When the tongue position is too low the body will generally create the needed air pressure by constricting the throat and closing the jaw. Low tongue position creates an undesirable balance between the lungs, tongue, throat and embouchure and we hear this immediately in the tone quality. For some direct evidence of this in professional players, find some older recordings of English clarinet players and listen for the nasal and under focused tone quality. This may be related to lower tongue position.

High tongue position in the mouth helps to compress the air which leads to more efficient use of air. Working to find the best possible tongue position will lead to a more ringing and focused tone and will even aid in creating longer phrases. The front of the tongue should say “shh” and the back of the tongue should be saying “hhee” or “hissing” like a cat. A great way to practice this is to work in the clarion register without the register key. Work to be able to tongue every note on the instrument without using the register key.

Quick Fixes from the podium and Air Summary

(Intended to spark further work in the practice room but may produce immediate results)

1. More air equals less bite.
2. What does it physically feel like to properly blow? -1/2 hole low D,
3. Voicing: throat relaxation/flexibility---“Barrel breathing” and “yawn feel”, bugle call
4. Tongue Position---“Shh” or “Tsu” for tip---“Key” or “hissing cat” for back of tongue practicing without register key in clarion register
5. Clarinets are sharp or squeaking a lot? --- More Air equals less bite
6. Barrel and MP pitch—should be a concert F# (-12) on a 66mm barrel
7. Upward leverage from R thumb- This exposes more reed and mouthpiece in the mouth and allows the reed to vibrate more freely.
8. Air Summary--Tension in abdomen, relaxation the throat, high tongue position to compress air at tip of reed.
9. Tone-All of the above- If the fundamentals are engrained the body will find a way to produce the desired tone.

Articulation: “In Time, In Tone, In Tune”

When a student/section is experiencing difficulty starting a note out of a rest (for example) with the desired timing, tone, and dynamic that you’re looking for, have them try to start the note with just air and embouchure.

1. Have them blow into the horn with their embouchure set and fingers pressing the keys and blow until the note comes out without any regard to timing. We just want them to learn what type of air and embouchure pressure is required to get the note to sound. If they’re unsuccessful after a few attempts assure them that is normal, and they should continue to develop this skill on their own.

2. Have the student attempt to start the note *in time* with just air and embouchure (breath attack). This can be a difficult task, particularly for lower notes. Assure them that it takes time to develop this skill. What this exercise does develop is that it takes away the student's dependence on the tongue to start the note and will begin to eliminate the percussive sound the tongue can produce when starting notes.
3. Finger pop technique: To help trigger the sound you can have the student press down the keys of the note they're trying to start except for the top finger in their left hand. At the moment of attack the student pops the finger down and this will facilitate response. This is particularly helpful for lower notes on all saxophones. They can experiment with which finger they choose to pop – some saxophonists use the top finger in their right hand. This technique can be combined with exercise #2 and is very useful in lyrical playing and softer entrances. Feel free to instruct the students to use this technique for any note below second space A.
4. If the student is unsuccessful in starting lower notes in that they come out an octave above (a low C comes out as a middle C) then have them change the vowel shape/tongue position to a more open vowel such as "o" or "ah". This will slow down the air and give them a better chance at success without having to drop the jaw (which we should never do to play a low note). On the opposite end, if they are having trouble with higher notes coming out slightly flat have them try an "e" vowel shape. This will shape the air better and give them a higher success rate in the upper register without biting.

Styles of articulation: "The end of the air stream"

In almost every style of articulation the tongue is going to hit the reed in the same place and we're going to use the same syllable to start the sound. The philosophy I carry and teach is that every articulation begins with the tongue hitting a portion of the tip of the reed right behind the tip of the tongue. I don't want the student to think that we have to hit the entire tip of the reed. This articulation style can become too percussive and sluggish. I begin each articulation with a "d" syllable rather than "t" because the tip of the tongue is a little firmer and I can be more precise with where I hit the reed.

Types of Articulation

1. Natural articulation – what if a note has nothing above it? How do we articulate it? This is most likely what is considered a "natural" articulation
2. Staccato – syllable: dah; (for added consideration for the development of the staccato we have attached an exercise for all students.)
3. Legato – syllable: doo
4. Accent – syllable: da (we use less air as the note decays creating detachment; for longer accented note values such as half notes "do" is supported. For shorter values "dah" is supported)
5. Marcato – syllable: dah, daht (jazz) (accented staccato)
6. Tenuto – syllable: da (accented legato)
7. Articulation Zero – this is the process of putting the tongue on the reed, building air pressure behind the tongue, then moving the tongue out of the way and releasing the pressure. Have the student use as little tongue as possible, but enough to block 100% of the air from getting into the instrument. This is a valuable exercise for the "breathe, set,

play” methodology. Articulation zero is the “set” portion, along with sealing the embouchure. If the student is unsuccessful at controlling the attack at first let them know this is common and that they need to continue to strengthen the embouchure through long tones so they’re strong enough to control the attack in the future.

The “do” or “da” syllable tends to support blowing through to the end of the note whereas the “dah” syllable supports an air stream that allows us to detach the notes easier. What I want my students to understand is that the treatment of the end of the note is incredibly valuable and that a strong consideration of the end of the note is crucial in becoming a great performer. Attached is a wonderful etude for the development of articulation.

Clarinet Articulation Highlights — It’s all about efficiency. Tongue on the wind. Tip of tongue to tip of reed. Less of the tongue should touch less of the reed. Use light tongue pressure on reed. Move less of the tongue (only front ¼ inch). Keep the tongue as close to reed as possible without distorting tone.

Technique: “Slow Music, Fast Fingers; Fast music, Fast Fingers”

The goal of great technique stems from two major components: great hand position on the instrument, and great choices/solutions for technical passages in your music. For saxophonists these choices will include which of the five fingerings for B flat we can choose from, side C, the choice of alternate F#, side D, and choosing between front keys or palm keys for notes 2 ledger lines and above. In order for the student to make smart choices we need give them fundamental exercises that will strengthen each option – almost like training ourselves to write with both hands. Below are a series of exercises for the development of B flat, alternate F#, side C, and palm keys vs. front keys.

1. Side B flat vs. “bis” B flat: Have the student play their F major scale, once with side B flat ascending and descending, once with the “bis” fingering ascending and descending, and then alternate the choice on the ascent and descent. Attached is the notated exercise.
2. Other fingerings for B flat that are less common but need to be a part of the technique tool box: 1 and 4 (or 5) and the trill fingering from A flat (retain the A flat fingering and use right side key #1 as the trill key).
3. Side C: In exercise 2 the student can practice using side C when C is an upper neighbor to B.

4. Alternate F# (trill fingering): alternate F# shouldn't be used exclusively for trilling. Exercise 4 has the student using this fingering in a couple different applications such as a chromatic passing note passage.
5. Side D: This note is usually produced by using the second palm key, sometimes with the middle C fingering, sometimes without – it depends on the student's saxophone. Yamaha saxophones and Selmer Paris saxophones traditionally do well just using the middle palm key. Other horns may need to add the middle C fingering in order to keep the pitch down. Side D is also the trill fingering for a C – D, or C# - D trill. Exercise 5 has a couple examples of using side D. Side D should be considered in passages that have a softer dynamic range.
6. Front E and F: For saxophonists extending their range they should begin to consider the front fingerings for E and F above the staff. These fingerings are particularly useful in arpeggios, such as the second octave of F major (A flat concert). Exercise 6 shows practical uses for front fingerings in the F major arpeggio, and the C major arpeggio.
7. Cleaning 16th note passages: Alternating rhythms is a fantastic way to clean 16th note passages. Attached are examples in common time and compound duple time signatures. Students should use the “long-short” and “short-long” method. Have them clean 2 measures at a time. If the desired results aren't there have them clean 2 beats at a time. I have my students play each rhythmic pattern 10 times, exaggerating the rhythm as much as possible.

Clarinet Technique: The key to playing fast is to practice slow.

Each finger must be trained individually and needs to move exclusively from the back knuckle (knuckle closest to hand). Think of each finger being a piston that moves the same way each time. Think of a golfer's putting stroke or the swing of a baseball player's bat and notice that they work carefully on their backswing. We can combine these ideas into an exercise that will that I like to call “one finger at a time”. This technique leads to smooth fingers and more legato passages.

1. Using a mirror is essential for this activity. Carefully examining each movement.
2. Set the metronome to 60 bpm. Use a half note pattern that alternates between two notes and isolates one finger at a time.
3. Use the C scale (concert Bb) starting on thumb C above the staff (on clarinet). Slur between the C and the B using half notes for a total of 16 beats.

4. When lifting the finger only lift enough so that the tone is clear. This won't be very far off the instrument. Keep the finger in this position for the entire first beat of each half note.
5. When depressing the finger, first lift the finger up 1-2 inches to create a "backswing" before lowering it to the instrument. This should be one continuous motion without hesitations.
6. Finger up a little on beat 1. On Beat 2 the finger does its backswing and then connects with the instrument just in time for the next note. Only press as hard as is necessary to close the key or tone hole. If the fingers turn white the player is using excessive finger pressure.
7. Take a new breath and continue with the next finger until you have practiced all of them individually. One can take this further by practicing 2 fingers at a time, 3 fingers at a time, etc, etc, etc.
8. Doing this everyday will train the fingers to be smooth and to make consistent contact with the instrument.

Hand Position: I always tell my students that the hands and fingers should be in a position similar to holding a bottle of water. All the knuckles are bent, and the hands are away from potentially hitting any side keys. Hand position is best monitored by the student themselves – they should be practicing in front of a mirror at home using memorized scales or using the attached trill exercises and correcting flaws in their hands as they play. Students should practice the trill exercises keeping the moving finger, or fingers, on the key. This will teach them control of the key height and fine muscles in their fingers. After I teach the fundamental I'll then create a "buzz" word to remind them when their hand position is slipping or before each rep of a technical passage. For my students I simply use the word "hands".

Clarinet hand position: avoid the claw!

The clarinet may sometimes be slightly too heavy for the hand of a younger/smaller student and this can lead to a hand position called "the claw". This is where the student holds some of the weight of the instrument with their right index finger directly underneath the bottom (Eb/Bb) side key. This completely immobilizes the right index finger and right hand. Remember that each finger needs to move freely from the back knuckle closest to the hand. To avoid "the claw" one must learn to hold the instrument with the right thumb and the back of the top front teeth.

1. Press right thumb on thumb rest upwards towards top teeth. This is called leverage.
2. Allow the bell of the instrument to come towards the body at a 45 degree angle (or less) so that the right thumb becomes a fulcrum point.
3. Allow the top of MP to fall into the back of the top front teeth.

4. Notice that the right index finger can now move freely.
5. A clarinet strap, with elasticity, could be a great practice or performance tool for any clarinetist and especially for those with smaller hands.

The Embouchure – “Drinking Water out of a Straw”

Is your student having trouble with their embouchure? Do they have bunched up chin muscles, or playing with an overbite or underbite? Have them make an embouchure without the mouthpiece in their mouth. This can be a really telling test, with the student usually pulling their corners back, or dropping their jaw too much (to name a few of the possible problems). Have the student pretend as if they are drinking water out of a straw. Go as far as asking them to “pull the water from the glass”. This will get the student to focus the embouchure in a circular formation. If you happen to have straws available have the student hold the straw in the center of their lips – this will help them feel the corners of their mouth create pressure as opposed to creating pressure with the bottom lip. Another test would be to play on just the neck and mouthpiece. Have them set the embouchure, inhale through the neck, then exhale and produce a pitch (A flat concert for alto) without resetting their embouchure. Let them know that we obviously will not inhale through the horn in any situation, but rather this is just an exercise for the development of the facial muscles.

Common problems that we’ll hear and potential fixes:

1. Subtone in the lower register. If the student descends into the bottom part of the horn and the tone gets really stuffy and lacks resonance and clarity, chances are they are pulling their bottom jaw back and off the reed. In this scenario have them play with a slight underbite. This will have them keep the jaw forward and allow the student to achieve a full clear tone. Their sound won’t be too controlled at first but assure them that with time they will sound fantastic.
2. If a student is playing flat in the upper register, or the higher notes are not coming out at all chances are they have a bit too much of their bottom lip rolled over their bottom teeth and they are not allowing the reed to vibrate freely. Have them consider putting a couple millimeters more mouthpiece in their mouth, or again, have them play with a slight underbite.

3. Brightness of tone. This has quite a bit to do with the reed and the placement of it on the mouthpiece. In many cases the student might not have enough bottom lip rolled over, or too much mouthpiece in their mouth. Additionally, the jaw needs to feel down and back and not pressed forward into the reed. Student should be able to create the “siren” sound with their barrel and mouthpiece or mouthpiece and neck. If they cannot produce this sounds it means that they are pressing the jaw forward and backwards rather than opening down and back from the jaw.

Tuning: “Playing out of Tune to Play in Tune”

As with all instruments in an ensemble playing in tune relies on which part of the chord we play. The attached chart will give examples of how to raise or lower pitches on the saxophone for the times you need a to address pitch from the podium. In most cases if you want to raise a pitch find another key on the saxophone to vent. For example: if you want the third line B to come up in pitch you have a couple options – open the G# key, or the bottom right hand side key (RSK1). To lower a fourth line D have the student close the low B key, or use side D. An example in the upper register: you can add any/all fingers in the right hand to a C, C#, or D above the staff. Any combination you choose will affect the pitch differently so have the student explore these options on their own. For palm key notes the student won’t have to use all the palm keys for the note their trying to play. For high F the student potentially only needs to use the third palm key with the top right side key (RSK 3). They could leave the first two palm keys closed to lower the pitch (as these notes tend to be sharp).

Techniques that effect tuning on clarinet—Knowing how to use these concepts effectively will allow one to have the tools to use better intonation.

1. Resonance fingerings on throat tones
2. Finger shading to lower pitch at optimal times
3. Louder equals lower pitch and softer equals higher pitch
4. Less bite = equals lower pitch
5. Voicing—throat flexibility
6. Air support—effects all of the above

The Mouthpiece and Reed Relationship

The mouthpiece and reed account for much of the saxophone's sound. Even with a student level saxophone a student can develop and produce a very high quality characteristic sound. Attached is a picture of a mouthpiece with the proper labels of each component. What is particularly important here is the table and window, side rails, tip rail, and facing.

1. **Table and Window:** the table is the large flat portion of the mouthpiece, and the window is the open segment where the reed sets. It is very important that the student visualize a line going down the center of these two areas as they are to match that up with the spine of the reed that goes down the center of the reed. The mouthpiece and reed need to line up spine to spine.
2. **Side rails:** These are the rails of the mouthpiece that run adjacent to the window. The reed will not over each rail completely as the mouthpiece is generally wider than the reed by about a millimeter on either side. Make sure the student can see the same amount of the rail on both sides of the reed.
3. **Tip rail:** These have varying widths depending on the mouthpiece the student is playing. Often times we say that you should be able to see "a small amount of the tip of the mouthpiece" above the reed when the reed is placed properly. However, a reed that is too low on the mouthpiece (because of a wider tip rail) the sound is airy and stuffy. Have the student move the tip of the reed up. When placing the reed on the mouthpiece the student should look at the tip of the mouthpiece at eye level, and with the thumb slightly depressing the tip of the reed to the tip of the mouthpiece the reed should be even with the tip of the mouthpiece. From there we can make small adjustments to the height of the reed for better tone and response. Have them make adjustments in measurements of a millimeter. The smaller the adjustment, the better.
4. **The facing:** The facing is where the curve of the mouthpiece begins. This is important for a couple reasons. First, it is the indicator of where the bottom lip should go – right where the facing begins. Have the student drop a small piece of paper between the mouthpiece and reed and without forcing the paper down they should gently push the paper down until it stops. This is an indicator of where the facing begins and where they should put their lip. Every mouthpiece has a slightly different facing length and so each

student will have a slightly different amount of mouthpiece in their mouth. Also very important about the facing – the severity of the curvature indicates how large the tip opening of the mouthpiece is. The larger the tip opening the softer of reed the student should use. Student level mouthpieces have a larger tip opening. These mouthpieces will always respond better with a 2.5 strength reed. For example, Yamaha 4C can use a 3, but a 5C should top out at a 2.5. Professional mouthpieces will almost always respond better with a 3 and above as they often can have a smaller tip opening for more control. The facing length is also an indicator of what strength reed a person should use. Longer facings are less resistant and would generally require a harder reed. Shorter openings are more resistant and would use a softer reed.

5. Balancing the reed on mouthpiece effectively each time you play ensures that the reed is playing at its best.
6. Everyone needs slightly different equipment but in general mouthpieces that have a tip opening that is too large can cause the player to bite. Try to use a mouthpiece that has a medium to closed facing

Quick Equipment Tips:

1. Be aware of clarinets with short barrels. The standard length for a Bb clarinet is 66mm and anything shorter will lead to sharpness in the clarinet section. Most beginner and some intermediate instruments are sold with a short barrel.
2. Encourage light pinky pressure to keep the instrument in alignment.
3. Align the clarinet properly during assembly. Make sure that the 1/1 clarion Bb will work but also that the right hand rings go down all the way without excess pressure.