The Trumpet Triangle

Tips and Techniques for the Developing Trumpet Player

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Introduction

Becoming a successful trumpet performer is dependent on learning to balance the three parts of the *Trumpet Triangle* shown below. A problem in any one of the three corners of the triangle generally results in problems in the other two as well. Each corner will try and compensate for the imbalance and as a result even more problems develop. The human body has an amazing ability to adapt and do what the brain is telling it. As we grow as musicians we strive to produce the music that is on the page and will often develop improper or unusual methods to “get the notes”. For many of us these methods we develop on our own to “get the notes” are adequate for our current level, but as we grow and attempt more difficult music we realize that these techniques have severe limitations and prevent us from performing at higher levels. For trumpet players, problems often occur in the areas of flexibility, range, endurance, and tone quality. What follows is my attempt to put into words ideas and techniques that have helped many of my students and I to gain a greater understanding of trumpet playing and to continue to improve as we strive to reach the highest level of playing possible for each of us. I hope the ideas contained in this book will be of some use to you as you continue on the lifelong journey of learning to play the trumpet.
The Trumpet Triangle

1. The Lips
From the beginning many trumpet players learn to focus on the lips often observing how they feel and what can be done to them to change pitches or sound quality on the instrument. Many students learn to tighten the lips for high notes and loosen them for low notes creating a constantly changing environment for the air to pass through. In my opinion the exact opposite needs to take place. The lips should be held in place by the surrounding embouchure muscles much like a ligature holds a reed in place, thus providing a stable and constant point for the air to vibrate. Think how different the lips feel from day to day: dry, chapped, sun burned, swollen, etc. Unlike reed players we cannot change our lips as needed, but by focusing on air as the primary energy source we can learn to rely less on changing the lips.

2. Air/Tongue
Although called a brass instrument the trumpet is more accurately described as a “wind instrument”. Air passes through the lips that in turn vibrate the air column thus producing a pitch. The more constant the supply of air the easier playing will be. It is best to think of your air as an independent element that continues at a steady rate regardless of what is happening in the music. Variations in airflow are the source of many trumpet players’ problems. The two most important aspects of air are:
   1. Constant Flow
   2. Variations in Rate or Speed of Flow

In the following example (Clarke’s Technical Studies) the second staff illustrates the airflow needed throughout the performance of the line of music above.

The above example addresses the issue of constant airflow, but what about air speed? Each pitch requires a different air speed: 1.) Low Notes = Slower Air  2.) High Notes = Faster Air. This is where the tongue comes into play. By using various tongue positions to change the size of the oral cavity we can easily vary the rate or speed of the airflow without changing the constant rate of flow. Imagine a river flowing into an area where the banks are much closer. The flow rate of the water remains the same, but the speed of the water increases as it moves into a smaller area. When the tongue is lowered the size of the oral cavity is increased and the air flows at a slower speed. When the tongue is raised the size of the oral cavity is reduced and the air speeds up. Some methods use syllables such as “tee”, “tah”, and “toe” to demonstrate the various positions of the tongue. When doing so it is important to remember that you do not want to change your throat to match the syllables. The throat should remain as open as possible. Saying “E” produces a very tight, closed feeling in the throat and interferes with the airflow. An
excellent book that deals extensively with the use of the tongue is Claude Gordon’s *Tongue Level Exercises for Trumpet* published by Carl Fisher. The diagram below from Gray’s Anatomy shows the oral cavity with the tongue in a fairly elevated position.

![Oral Cavity Diagram](image)

**3. Embouchure**

I define the embouchure as the muscular structure surrounding the mouth that is used to keep or hold the lips in a stationary position as air is blown through them. The embouchure functions in much the same way as the ligature on a clarinet or saxophone mouthpiece: it holds the lips (reed) in place to vibrate as the air is passed through the lips. The embouchure must be strong enough to hold the lips in place no matter what the speed of the air is that blown through the lips. Another definition of embouchure, found on page 5 of Farkas’s *The Art of Brass Playing*, is “the mouth, lip, chin, and cheek muscles, tensed and shaped in a precise and cooperative manner, and then blown through for the purpose of setting the air-column into vibration when these lips are placed upon the mouthpiece of a brass instrument.” Below is a picture showing the muscles used in forming the embouchure (p. 13, Farkas).
Summary
It is how each of the above three areas combine and work together that determines the success or failure of playing the trumpet. A balance must be achieved through consistent practice of the correct material. We must always remember that we are dealing with muscles and that they must be exercised and rested to perform well.

When your playing isn’t going well examine the three points of the triangle and ask yourself which one is not functioning well. The first point to examine is air. This is often the key to solving minor problems with tone production. As stated earlier, a problem with one point of the triangle will often cause problems in other areas as the body struggles to produce the notes on the page. A good example of this is when we have played for a long time and fatigue begins to set in. The more tired we get the less air we use and eventually we rely on pressure and lip tension to continue to play. The embouchure must work much harder than normal as the use of air decreases and lip tension and pressure take over. Our playing quickly worsens and we are soon forced to stop.

Books Every Serious Trumpet Student Should Have

1. Arban’s Complete Conservatory Method Published by Carl Fisher
2. H.L. Clarke’s Technical Studies Published by Carl Fisher
3. Schlossberg’s Daily Drills and Technical Studies Published by M. Baron
4. Vizzutti’s Trumpet Method Books 1-3 Published by Alfred
5. Goldman’s Practical Studies for Trumpet Published by Carl Fisher
6. Gordon’s Tongue Level Exercises Published by Carl Fisher

Online Resources for Trumpet Players

International Trumpet Guild: http://www.trumpetguild.org/index.htm

The Trumpet Players’ International Network: http://trumpet.dana.edu/~trumpet/

Trumpet Player Online: http://www.v-zone.com/tpo/Trumpet.html


Windsong Press is an excellent source of information about Arnold Jacobs (1915-1998), the principal tuba of the Chicago Symphony for 44 years. Mr. Jacobs had the reputation as both a master performer and master teacher. He taught tuba at the Northwestern University School of Music and all wind instruments in his private studio. He was one of the most sought after teachers in the world, specializing in respiratory and motivational applications for brass and woodwind instruments and voice. Many of his past students hold positions in orchestras and universities around the world. At the Windsong web site you can purchase breathing devices designed to improve wind players’ use of air.
The Brass Players Pyramid

A guide to the daily diet of exercises needed to develop and maintain the necessary skills and strengths for successful performance on a brass instrument.

Focus on the Bottom for Success at the Top!

Technical Etudes

Lyrical Etudes
Etude means Study

Articulation/Tonguing
Air Attacks and Air Rhythm on Paper
Single, Double, and Triple Tonguing

Schlossberg, Arbans, Colin, and Gordon
(tongue level)

Lip Flexibility
Slurs/Tongue Level

Farkas for Horn Players

Long Tones/Air Flow
Tone Development

MUSIC

Clarke Technical Studies, Vizzutti Method, and Arbans
Horn Players: Kopprasch and Pottag

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Top Ten Ways to Improve Your Brass Playing

1. **Listen to Great Players:** It is the only way to establish in your mind an excellent concept of tone quality and musicianship.

2. **Take Private Lessons:** The advice of an accomplished musician cannot be underestimated.

3. **Breath from the Bottom Up:** Develop a relaxed approach to breathing that begins at the bottom and fills to the top. Keep your throat open by thinking of the “O” syllable. Breathing is a one step process. Do not hold your breath or hesitate at the top of the inhalation. Think of it as one smooth motion similar to a good golf swing. A teacher of mine once told me to think “hoe” when breathing in and “tow” when blowing out. Air is the key to playing any brass instrument.

4. **Practice:** Remember practice time is not playing in an ensemble it is time spent on your own working to solve problems. Do not practice what you already can play. The Bb concert scale is probably not difficult for you! A good practice session is based on established goals, short and long term, and is successful when you improve some part of your playing each time. Quality is more important then quantity

5. **Play Solo and Chamber Music:** We develop into more complete musicians when we are involved in settings that are 1 on a part or solo. Solos and chamber music ensembles challenge us to be independent, well prepared musicians.

6. **Tonguing:** Good articulation is the result of consistent practice with a metronome and making sure that air is what is behind each note not just tongue. A good way to develop this is to practice air attacks and then add a “T” to the beginning. Always think of the tongue as dividing a constant air stream into rhythmic units. Keep Blowing!

7. **Use Less Pressure:** Some people believe that you can play with no pressure. While I do not, I do believe that the less pressure the better. Excess pressure prevents the lips from vibrating as air is blown through and actually makes it harder to play. You can only use so much pressure before the lips are against the teeth.

8. **Own and Use a Metronome and Tuner:** These are essential tools for all musicians and thanks to advances in technology the prices are very reasonable. Use your metronome to establish steady time and to help you chart your progress as you practice various exercises.

9. **Know all of your Major and Minor Scales:** Remember to play them in different patterns such as thirds and to use standard method books to explore each key area in many ways. You could also add arpeggios to the list. The more fluent we are as players in playing and recognizing basic musical patterns the better readers we will be.

10. **Make your Valve/Slide Changes Quick and Precise:** For trumpet players it is often helpful to think of slamming the valves down. Remember that in many cases valve changes are also the rhythm of the passage. The more precise and quick your valve and slide changes are the cleaner and more rhythmic your playing will be.
The Harmonic Series and Lip Slurs

The ability to slur smoothly over many different intervals is an essential skill for all trumpet players to acquire. When slurring focus on tongue position and air speed rather than adjustments of the lips themselves. It is very difficult to do fast lip slurs while changing the lips or the corners of the embouchure. The lips need to remain in a constant position, free to respond to the air stream. Imagine your lips as a reed held in place by a ligature. The only purpose of the lips is to vibrate the air stream. The muscles that surround the lips and form the embouchure serve the same purpose as the ligature. The strength needed by these muscles depends on the register. Higher notes require a fast, strong airflow. The embouchure (not the lips!) must be stronger to keep the lips in place as the faster, stronger air moves through the lips. If you can achieve a fast, easy sounding glissando effect on the various valve combinations you are most likely slurring correctly.

Below are some excellent books with lip slur exercises.

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>Comments</th>
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<tbody>
<tr>
<td>1. Complete Method</td>
<td>Arban</td>
<td>pp. 42-47</td>
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<td>2. Daily Trumpet Routines</td>
<td>Gordon</td>
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<tr>
<td>3. Development and Maintenance of Brass Techniques</td>
<td>Haynie</td>
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<tr>
<td>4. 27 Groups of Exercises</td>
<td>Irons</td>
<td>pp. 5-21</td>
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<tr>
<td>5. Daily Drills and Technical Studies</td>
<td>Schlossberg</td>
<td></td>
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<td>6. Characteristic Studies</td>
<td>Clarke</td>
<td>#5 and 21</td>
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<td>7. Advanced Lip Flexibilities</td>
<td>Gordon</td>
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<td>8. Brasss Tactics</td>
<td>Sanborn</td>
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<td>9. Take the Lead</td>
<td>Spera</td>
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<tr>
<td>10. Lip Flexibility</td>
<td>Smith</td>
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The harmonic series is a naturally occurring set of pitches that are determined by the length of tubing used. The Bb trumpet is approximately 4 feet in length and will sound the above harmonic series when no valves are used. An interesting experiment is to construct a “hosaphone”. Buy a length of plastic tubing that your mouthpiece will fit in and attach a metal funnel to one end and the mouthpiece to the other. The notes you will get will be determined by the length of the tube and will produce a series of notes like the one shown above. Prior to the invention of the valve, circa 1817, trumpet players could only play notes from the harmonic series. Trumpets without valves came to be called “natural trumpets” to avoid confusion with the new instrument with valves. In the orchestral music from the Classical era, the time of Mozart and Haydn, the notes used for the trumpet were selected from the harmonic series only as the valve had yet to be invented.

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Suggested Listening

Listening to recordings and live performances is one of the most important things you can do to become a better player. We must form a mental picture of how we want to sound and the only way to do this is to hear excellent examples of trumpet playing. You will form your trumpet personality in much the same was that you developed your human personality. We pick and choose the things we like about the many players we listen to and develop our own trumpet sound and style based on our favorite parts of each. Below are some suggested recordings. The public library is often an excellent source of recordings.

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<tr>
<th>Performer</th>
<th>Album Title</th>
<th>Company and Number</th>
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<tr>
<td>Ray Mase</td>
<td>The Trumpet in Our Time</td>
<td>Summit DCD 148</td>
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<tr>
<td>Ray Mase</td>
<td>Trumpet Vocalise</td>
<td>Summit DCD 185</td>
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<tr>
<td>Maurice Andre</td>
<td>Italian Baroque Concertos</td>
<td>Erato D161430</td>
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<tr>
<td>Harkan Hardenberger</td>
<td>Telemann Trumpet Concertos</td>
<td>Philips420 954-2</td>
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<tr>
<td>Miles Davis</td>
<td>Kind of Blue</td>
<td>Columbia CK64935</td>
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<tr>
<td>Timofei Dokshizer</td>
<td>Russian Treasures</td>
<td>ITG 108</td>
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<tr>
<td>Sergei Nakariakov</td>
<td>Elegie</td>
<td>Teldec 0630-15687-2</td>
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<tr>
<td>Sergei Nakariakov</td>
<td>No Limit</td>
<td>Teldec 8573-80651-2</td>
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<tr>
<td>Wynton Marsalis</td>
<td>In Gabriel’s Garden</td>
<td>Sony SK 66244</td>
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<td>Phil Smith</td>
<td>Contest Solos</td>
<td>ITG 111</td>
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<tr>
<td>Charles Schlueter</td>
<td>Bravura Trumpet</td>
<td>Vox 7513</td>
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<tr>
<td>Gerard Schwarz</td>
<td>Classic Trumpet Concerti</td>
<td>Delos DE 3001</td>
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<tr>
<td></td>
<td>(Haydn and Hummel)</td>
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<tr>
<td>Phil Smith</td>
<td>Orchestral Excerpts</td>
<td>Summit DCD 144</td>
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<tr>
<td>Jouko Harjanne</td>
<td>Trumpet Experience</td>
<td>ITG</td>
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<tr>
<td>Wynton Marsalis</td>
<td>Carnaval</td>
<td>CBS MK 42137</td>
</tr>
<tr>
<td>Niklas Eklund</td>
<td>Art of the Baroque Trumpet</td>
<td>Naxos 8.553531</td>
</tr>
<tr>
<td></td>
<td>(Natural Trumpet)</td>
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<tr>
<td>Wynton Marsalis</td>
<td>On the Twentieth Century</td>
<td>Sony SK 47193</td>
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<tr>
<td>Robert Sullivan</td>
<td>Treasures for Trumpet</td>
<td>Summit DCD 319</td>
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Online Sources for Recordings

Walking Frog Records
http://www.walkingfrog.com/home.php

Summit Records
http://www.summitrecords.com/

Tap Music
http://www.tapmusic.com/
**Important Trumpet and Horn Performers**

### Horn
- Gail Williams – Northwestern University Chicago, retired from the Chicago Symphony
- Froydis Ree Wekre – Norwegian Horn Soloist
- Hermann Baumann – German Horn Soloist
- Barry Tuckwell – American Horn Soloist
- Dennis Brain -- English Horn Virtuoso
- Dale Clevenger – Principal Horn Chicago Symphony
- Douglas Hill – University of Wisconsin – Madison
- Erik Ruske – Former horn player for Empire Brass Quintet
- Thomas Bacon
- Phillip Farkas
- David Ohanian – Formerly of the Canadian Brass and Empire Brass, now in the Tran Atlantic Horn Quartet
- Phillip Meyers -- Principal Horn New York Philharmonic
- Michael Thompson – Trans Atlantic Horn Quartet
- Richard Watkins – Trans Atlantic Horn Quartet, Royal Academy of Music Dennis Brain Chair

### Brass Chamber Ensembles
- American Horn Quartet
- Trans-Atlantic Horn Quartet
- Canadian Brass Quintet
- American Brass Quintet
- Summit Brass
- St Louis Brass Quintet
- Philip Jones Brass Ensemble

### Trumpet, Classical
- Anthony Plog
- Tom Stevens
- Phil Smith
- Ray Mase
- David Hickman
- Wynton Marsalis
- Harkan Hardenberger
- Robert Sullivan
- Maurice Andre
- Rafael Mendez
- Gerard Schwarz
- Niklas Ecklund
- Sergei Nakariakov
- Timofei Dokshizer
- David Baldwin
- Vince DiMartino
- Jouko Harjaanne
- Charles Schlueter
- Chris Gekker
- Susan Slaughter

### Trumpet, Jazz
- Wynton Marsalis
- Lee Morgan
- Miles Davis
- Woody Shaw
- Clark Terry
- Freddie Hubbard
- Clifford Brown
- Maynard Ferguson
- John Fadis
- Nicholas Payton
- Dave Douglas
- Roy Hargrove
- Chet Baker
- Arturo Sandoval
- Dizzy Gillespie
- Louis Armstrong
- Kenny Dorham
- Bix Beiderbecke
- Byron Stripling
- Roy Eldridge
- Allen Vizzutti
- Wayne Bergeron
- Bobby Shew
- Randy Brecker
- Thad Jones
- Doc Severinsen

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In the rush to get through the material assigned for their lesson or the stack of music on the stand for upcoming gigs, many student musicians and advanced players fall into the habit of playing through their music quickly, often only hitting the surface of what is in the music. I call this the “play through it syndrome.” Imagine if an archaeologist in his or her rush to get to the next dig merely swept away the first few layers of dirt and seeing no bones, quickly moved to the next site. Just scratching the surface is not sufficient to find the treasures that lie buried in deeper layers. The suggestions below are techniques that can help us to get to the hidden layers and learn music more completely. These techniques are not new and have been used by musicians throughout the years. I have learned these techniques from many sources including master classes, private lessons, articles, and other performers and teachers.

1. Sing the part. Use Solfege (do, re, mi, etc.). We must hear what we are going to play before we play it. I call this playing from the inside out. If you can sing it, you can play it. The combination of a solid sense of internal pitch and rhythm combined with muscle memory is the best approach.

2. Find the important pitches. Some people refer to these key notes as goal notes or pitches.
   a. Often within a technical passage certain notes will outline an important melody or harmonic sequence.
   b. Finding these pitches will provide the ear with valuable goal pitches inside of technically demanding passages.

3. Slow down! Play the passage at a tempo that you will be able to play error free.
   a. Do not immediately increase the tempo by large leaps.
   b. Gradually increase the tempo following three correct, consecutive repetitions of the passage.

4. Change the rhythms. For example a passage of sixteenths could be played as dotted eighth sixteenths. Changing the rhythm brings out different pitches in the line and the emphasis placed on them.

5. Take the problem spot out of context, but make sure to put it back in with the surrounding material. Sometimes the difficulty lies in getting into the measure and out of it as well as with breathing.

6. Analyze the part for common musical patterns such as scales (or scale fragments) and arpeggios.
   a. Knowing what pattern is being used helps free up the brain to look ahead or focus on musical elements.
   b. This is one of the key reasons for the practice of scales and other technical exercises.

7. If a passage is tongues, it should be practiced slurred.
   a. Slurring emphasizes the continuous airflow that should also be present in tongued passages.
   b. Slurring also focuses on tongue position for leaps. Maintaining the same tongue position used when slurring and tonguing will greatly improve accuracy.

8. If a passage is slurred, tongue it.

9. For upper register problems, play the passage down an octave. When returning to the upper octave, maintain the same feeling as when playing it an octave lower. Resist the temptation to over tighten the lips. Focus on strengthening the embouchure and facial muscles instead. Keep the air flow constant.

10. Press the valves down firmly at all times. Many players press the valves slowly when playing lyrical, slow moving music. We must always press the valves down as quickly as possible. Valve changes affect rhythm and pitch greatly. Try playing the passage with the left hand.

11. Learn to play fast passages faster than marked and slow passages slower than marked.
   a. Practice without ties.
   b. Play all the smaller rhythmic values within a larger rhythm. An example would be to play 3 sixteenth notes on the dotted eighth of a dotted eight sixteenth passage. By doing this you will learn to place the sixteenth on the fourth subdivision of the beat accurately.

12. Don’t always start practicing at the beginning. Have a plan in mind and target specific spots. Have long and short range goals for each item you are practicing.

13. Use a metronome. Establish your goal tempo and work towards it in a logical fashion.

14. Do not neglect the musical aspect of your pieces. Know where the phrases are. Practice the dynamics. Strive to play with a beautiful singing tone at all times.

By approaching a passage from many different angles, you will greatly increase the odds of successful performance. Mastery of difficult passages will often transfer to other pieces of music you encounter resulting in a sustained and overall improvement in your playing.