

# Assessing Awareness and Knowledge of the Phonatory Onset in Collegiate Level Singers.

## Onset in Collegiate Level Singers.

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### Introduction

Injuries experienced by singers can be caused by excessive forces generated on the lamina propria during vocal fold collision<sup>1</sup>, and the type of onset a singer uses to initiate tone may be a determinant on the level of force generated during vocal fold oscillation<sup>2</sup>. Little is known about what singers know regarding the importance of the onset, and without proper instruction students may be at risk. Because NASM accredited schools are required to fully inform student musicians about occupational health issues it is important to develop educational interventions based on what singers are aware of, knowledgeable about, and capable of doing. Until researchers have information on the student singer's onset awareness, it will be difficult to develop appropriate interventions.

The purpose of this study was to:

**Investigate the awareness, knowledge, and competency of singers about the occupational health hazards related to the phonatory onset in singing.**

### Method

A survey was developed and administered online via Qualtrics software. In addition to assessing demographics of collegiate singers, how many voice teachers each participant has had, and what genres students have studied, the survey examined how the students have been instructed to begin singing tone. Data collection included specific questions on the singers' knowledge and application of the four types of onset: aspirated, well-coordinated, *coup de la glotte*, and the hard glottal attack. Instructions guided subjects to answer questions exclusively in relation to vowel-initiated tones. The survey was pilot tested and IRB approved. Survey distribution was online and collegiate singers were recruited through emails to the investigator's singing contacts and through social media platforms. Data analysis was done using SPSS software.

### Results

As shown in **Table 1**, this group of collegiate singers (N=83) was predominately female (64%) with 33% being male. On average, many subjects report studying voice for 6-10 years (43%), although 31% have only studied 1-5 years, with 25% having studied more than 11 years. Most singers have had between 1 and 5 voice teachers (80%), and 20% have studied with 6 or more teachers. Respondents were fairly evenly distributed in terms of level of education, with 49% undergraduates and 51% graduate students. Subjects overwhelmingly studied opera (84%) most often, followed by musical theatre (11%), with much fewer subjects studying pop (2%), jazz (1.5%), or some other genre (1.9%).

**Table 1. Demographics**

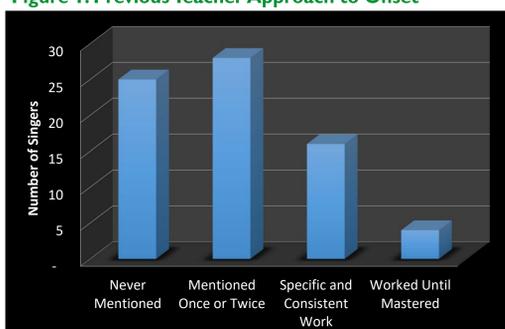
Variables	Total
<b>Gender N (%)</b>	83
Female	53 (64)
Male	27 (33)
Non-Binary Identification	3 (4)
<b>Number of Years Studied Voice (%)</b>	
1-5	26 (31)
6-10	36 (43)
11-15	12 (14)
16+	9 (11)
<b>Grade Level (%)</b>	
Undergraduate	41 (49)
Graduate	42 (51)
<b>Number of Voice Teachers (%)</b>	
1-5	66 (80)
6-10	15 (18)
11-15	2 (2)
<b>Age First Studied Voice (%)</b>	
5-10	9 (11)
10-15	30 (36)
16-20	40 (48)
21+	4 (5)

### Awareness of Phonatory Onset

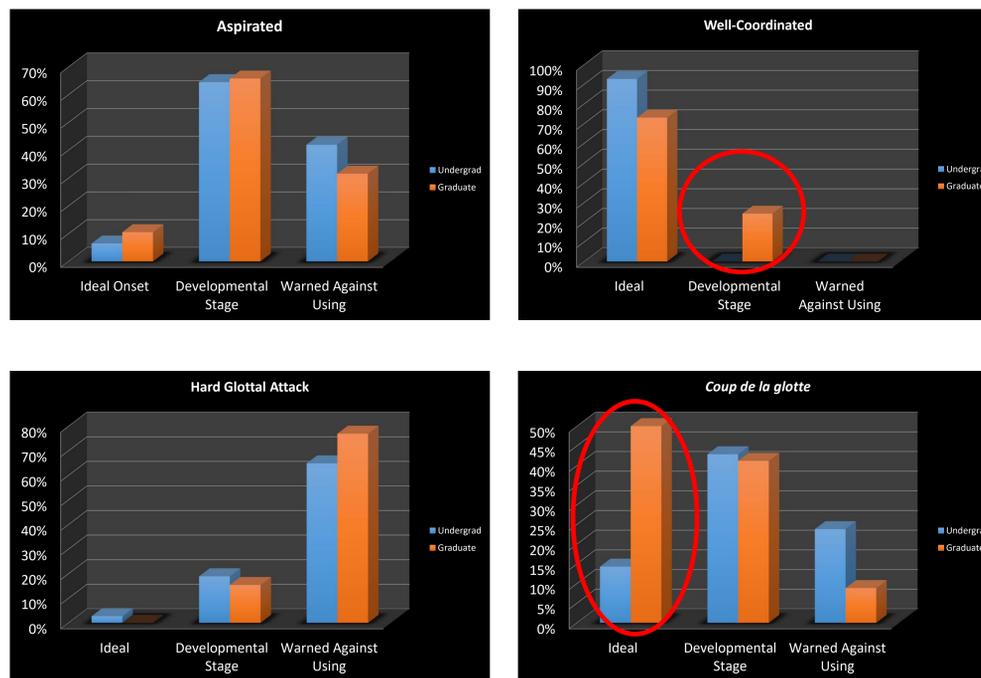
93% of subjects report they have been instructed on how to begin singing tone, and 92% indicate they have heard the term "phonatory onset," or just "onset." Even with this very high number, only 49% indicate their current teacher specifically and consistently works on the onset through exercises or verbal instruction, and 25% report their current teacher has either never mentioned the onset, or have only mentioned it once or twice. 13% of participants say their current teacher previously worked on the onset, but no longer do so because the concept was mastered.

As shown in **Figure 1**, when considering past teachers, only 33% of subjects report their most recent past teacher specifically and consistently worked on the onset, with 42% reporting their previous teacher never mentioned the onset or only mentioned it once or twice. Fewer people reported on a different past voice teacher (N=73), but only 16% of those indicated the previous teacher to have worked specifically and consistently on the onset, and 53% indicate the previous teacher either never mentioned the onset or only mentioned it once or twice.

**Figure 1. Previous Teacher Approach to Onset**



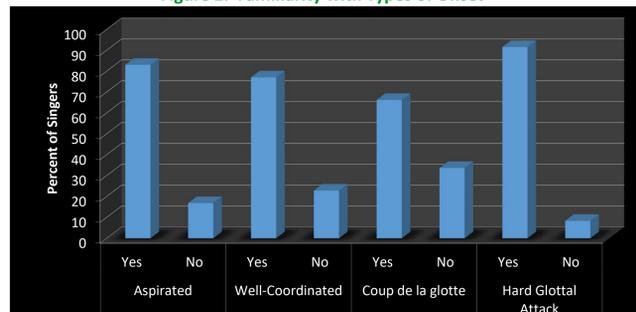
**Figure 6. Singers' Knowledge of Applying Phonatory Onset by Education Level**



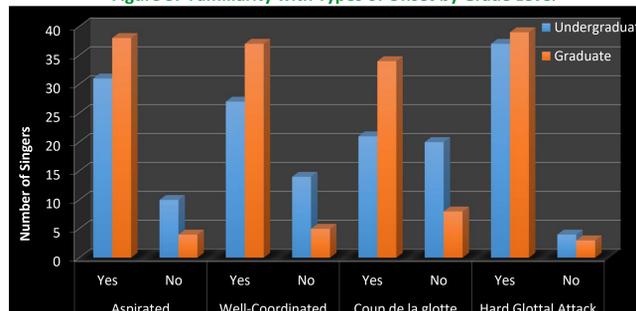
### Types of Onset

**Figure 2** shows that a majority of subjects have heard the terminology for the four different types of onset: aspirated (83.1%), well-coordinated or well-balanced (77.1%), *coup de la glotte* (66.3%), and hard glottal attack (91.6%). But, as shown in **Figure 3**, for every type of onset, more graduate students were familiar with the terms than undergraduates. For the *coup de la glotte* onset, Pearson's Chi-Square shows statistically significant results comparing Undergraduate and Graduate singers ( $\chi^2=13.434, p<.05$ ). Additionally, **Figure 4** indicates, only 46 people (55.4%) responded they had heard of all four types of onset. Only 1 respondent indicated they had not heard of any of the four onset types.

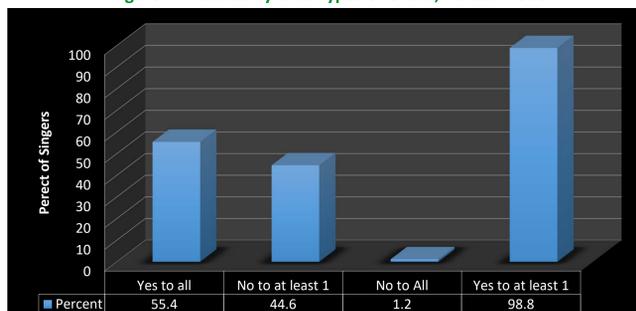
**Figure 2. Familiarity with Types of Onset**



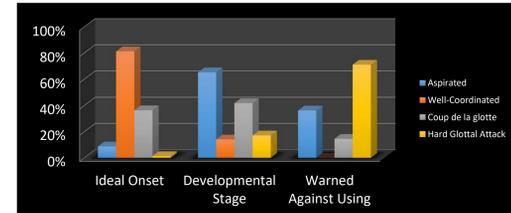
**Figure 3. Familiarity with Types of Onset by Grade Level**



**Figure 4. Familiarity with Types of Onset, All and None**



**Figure 5. Knowledge of Applying Phonatory Onset**



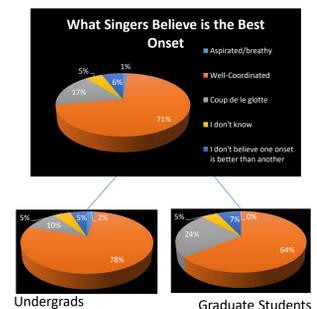
### Knowledge of the Phonatory Onset

While the majority of singers reported that at least one teacher told them the well-coordinated onset was the ideal method of beginning vowel initiated vocal tone (78%), there is much overall discrepancy in the results. **Figure 5** shows the varied nature of the responses, including the conflicting instruction some singers have received. When asked which onset singers have been told by their teachers is the ideal, 78% of respondents reported they have been told the well-coordinated onset is best, 32% reported the *coup de la glotte*, 6 singers (7.2%) the aspirated onset, and 1 person has been told the hard glottal attack is the ideal onset. 15 people have been instructed on different ideals by different teachers. Similarly confusing for singers, 30% reported they have been warned against ever using the aspirated onset, but 54% said they were told to use this onset as a developmental step toward a more optimal one. Even though only 55 singers had ever heard of the *coup de la glotte* (see figure 2), more than 1/3 (36%) of those people have been told it is the ideal onset, while 15% have been warned against ever using this onset. 71% of respondents said they have been warned against using a hard glottal attack, which could indicate an awareness of the correlation between hard glottal attack and vocal fold lesions<sup>3</sup>.

**Figure 6** shows the break down of knowledge of use of onset by education level, including only singers who responded they had heard of the terms, showing a percentage of singers who have been told each onset was either ideal, a developmental stage leading to a better onset, or they have been warned against using the onset. While answers for aspirated onset and hard glottal attack were very similar across grade levels, responses for well-coordinated onset and the *coup de la glotte* presented with some statistically significant findings. While over 90% of undergraduate students were told the well-coordinated onset is ideal, only 73% of graduate students indicated this response. Pearson's Chi-Square shows that, significantly, 24% of graduate students said the well-coordinated onset is a developmental stage, while 0% of undergraduates reported this answer ( $\chi^2 = 9.854, p<.005$ ). Additionally, 50% of graduate students said the *coup de la glotte* is the most ideal onset, but only 14% of undergraduates said this was true ( $\chi^2=12.472, p<.001$ ).

**Figure 7. Competency of the Phonatory Onset**

When asked which onset the singers believed to be the best onset to use in vowel initiated tones, results were similar to what singers responded they had been told by their teachers, with 71% believing Well-Coordinated to be best, 17% believing *coup de la glotte* is most ideal, and 1% aspirated. 5% said they didn't know, and 6% don't believe one onset is better than another.



### Conclusion

This is the first known study to assess what collegiate singers know about phonatory onset. The findings indicate there are many voice students not receiving specific or consistent instruction on how to begin vowel initiated singing tone. Additionally, study findings show that when singers are receiving specific instruction, the pedagogical methods vary depending on the voice teacher. Additional research is needed to better understand the intentions and motivations of voice teachers when addressing the issue of phonatory onset and their students. There has long been controversy over the most appropriate onset to use for vowel initiated singing tone<sup>4</sup>, and more research is needed to establish empirical evidence-based recommendations. Another important finding suggests the need for more thorough teacher education on the difference between onset types and the appropriate technique to execute them. Finally, voice health researchers need to work with voice teachers to help develop effective vocal health protocols.

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Kourtney received her Bachelor of Science in Vocal Music Education from Northwest Missouri State University, and her Master's degree in Voice from the University of Missouri-Kansas City, Conservatory of Music. Additionally, Mrs. Austin received a Certificate of Vocology from the University of Iowa, and used this expertise in her own business, Heartland Healthy Voices, providing vocal health seminars, private voice lessons, and transgender voice training in Saint Louis, Missouri. She also spent 14 years as an instructor of voice for the Community Music School of Webster University and served as the Artistic Director of CHARIS, The St. Louis Women's Chorus before moving to Texas in 2014. Mrs. Austin is an accomplished mezzo-soprano and has performed on stages across the United States in opera, oratorio, and recital. Recent roles include Freddie in *The Vegans* of Provincetown, Rosina in *Il Barbiere di Siviglia*, and Joan in the monodrama *Jehanne de Lorraine*. Kourtney has served as a singing voice consultant for the University of Iowa Voice Clinic, and worked as a clinician in Voice Diagnostics. In her private teaching studio, Mrs. Austin is known for her work helping people strengthen their singing voice following a voice disorder, and several of her students have gone on to become performance scholarship recipients and competition winners. As an active member in the National Association for Teachers of Singing, the Music Educators National Conference, and the Texas Music Educators Association, Kourtney is well-respected in the voice field and continues to make her mark as a musician and a vocal health specialist.