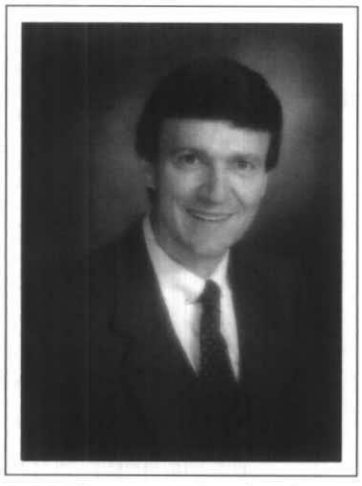
A Comparison of Breath Management Strategies in Classical and Nonclassical Singers: Part 2



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INTRODUCTION

Experience has shown us that classical and nonclassical singers use different breath management strategies during singing. Although these strategies can be observed in the chest and abdominal wall movement of singers, it has been difficult to quantify the movements and discern their importance to the management of breath in singing. Recently, several new studies have given us additional insight regarding breath management in singing. Thomasson and Sundberg (1997) examined the breathing dynamics of classically trained singers, and Hoit, Jenks, Watson, and Cleveland (1996) considered the breathing habits of country singers. This article examines the results of these recent studies and determines how the new findings may affect our pedagogical approach to various singing styles. In Part 1, (Volume 54, No. 5, pp. 1–4) we discussed the influence of gravity, elastic recoil, and muscle action on the breathing system. In this article we will consider several fundamental terms related to respiratory function. Those terms important to our current discussion are as follows:

Total lung capacity refers to the volume of air contained in the lungs and airways at the end of a maximum inhalation. There are several divisions of the total lung capacity.

Residual volume is the amount of air left in the lungs and airway at the conclusion of a maximum exhalation. We should remember that no matter how forceful the exhalation, the residual volume can never be evacuated from the breathing system. **Expiratory reserve volume** is the volume of air that can be exhaled from the resting expiratory level. **Inspiratory capacity** is the maximum volume of air that can be inhaled from the resting expiratory level.

The **vital capacity** is the amount of air that can be exhaled from the lungs and airway after a maximum inhalation. **Vital capacity** includes the **inspiratory capacity** and the **expiratory reserve volume** but, because it can never be evacuated, does not include the **residual volume.**

A chart of volumes for the normal adult male includes the following divisions and air capacities in liters for those divisions:

Residual volume	2.0 liters
Expiratory reserve volume	2.0 liters
Inspiratory capacity	3.0 liters
Total lung capacity	7.0 liters

Of the total lung capacity, the actual volume of air the average adult male would have at his disposal for use is 5.0 liters. This is the **vital capacity**.

With these definitions in mind, we may now examine the breath-use patterns in classical and country singers.

1. **Initiation lung volume** (ILV) is the lung volume at which singers initiate singing. In the study of classically trained singers, ILV was approximately 70 % of the vital capacity, while in country singers, the ILV was measured at about 55 %. Seventy percent is slightly different from some studies of the past. For instance, previous studies (Procter 1980) suggested that trained classical singers initiated their breath at approximately 90 to 100 % of their vital capacity. The Thomasson study suggested that the singers may initiate the sound at higher lung volumes, but on average, the initiation begins at approximately 70 %.

2. **Termination lung volume** (TLV) is lung volume at which singers terminate singing. In classically trained singers it was approximately

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34% of the vital capacity and in country singers about 29%.

3. **Breath group volume** (BGV) is the volume of breath used between the initiation lung volume and the termination lung volume. In classically trained singers it was approximately 36% of the vital capacity. There was a marked difference between males and females as the value for females was 43% and for males 28%. For the country singers, the BGV was approximately 26%.

4. **Mean phrase duration** (MPD) is the average time a singer sings a typical phrase. In the classical study the MPD was 5.2 seconds when averaged over all subjects. As in the BGV, the males again differed from the females. The mean for males was 4.9 seconds, the mean for females was 5.4 seconds. The MPD was not calculated in the country singers.

5. **Mean flow rate** (MFR) is the rate at which singers use their breath. The rate was 9% of the vital capacity per second for females and 7% of the vital capacity for males. Since the BGV of the singers is approximately 36% and they use 7–9% of their volume per second, the average duration of a single phrase measured 5 seconds in this study.

I'm sure you agree that these findings are intriguing and enlightening regarding the act of singing. In the next issue, we will discuss the meaning and impact of these findings on our pedagogy.

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