

Kohut, Daniel L., "Musical Performance: Learning Theory and Pedagogy", Englewood Cliffs, New Jersey, Prentice Hall, 1985 p. 179-181

### The Jacobs Complete Breath

To find a practicing professional musician who possesses an extensive knowledge of human physiology is rare, but fortunately we have such a person in Arnold Jacobs, an internationally recognized expert in breathing and wind-instrument pedagogy. According to Jacobs, the lower chest or diaphragmatic breath is only "half a breath." Consistent with the views of Ramacharaka and Fenn and his coauthors, you cannot achieve full lung capacity without also expanding the chest area to its maximal diameter. In view of these facts, the Yoga Complete Breath would seem to be the ideal solution, since it emphasizes using both the abdominal and chest areas. Jacobs disagrees. His main objection lies in the fact that the breathing process is initiated in the abdominal area.

Let me explain why this causes a problem. All the muscles of the abdominal wall are attached to the lower ribs. When a concerted effort is made to push these muscles outward at the beginning of inhalation, this pulls downward on the lower ribs, which in turn inhibits the freedom of these ribs to move upward and outward, which is necessary in order to achieve maximal chest expansion. While it may be possible to attain maximal chest expansion later by drawing the lower part of the abdomen slightly inward, why compensate with an additional muscular movement later that seems unnecessary? Why not simply take a deep breath naturally, the way nature intended, by initiating movement in all parts of the breathing apparatus simultaneously? When this is done, both groups of breathing muscles (agonist and antagonist) are allowed to operate in a balanced, coordinated fashion providing for maximal breathing efficiency. This in turn eliminates wasted effort, which results when opposing muscles work against one another. Perhaps most important, this method allows for quicker intake of air, a major concern to all musicians.

For a better understanding of this, let us take a close look at what happens physiologically when a breath is taken in the manner advocated by Jacobs. First of all, the key factor is to expand both the rib cage and the abdominal area naturally and simultaneously. To accomplish this, the breastbone must rise gradually, accompanied by outward as well as upward movement of the rib cage, particularly in the area just above one's elbows. At the same time that the rib cage is expanding outward and upward, the abdominal muscles should be relaxing gradually outward, so that the contracting diaphragm can descend downward and thereby increase the size of the lower section of the chest cavity. In other words, rib-cage and abdominal-muscle action must be coordinated and balanced. When this goal is accomplished, the chest cavity is able to reach its maximal size with minimal use of body energy. This allows the lungs to expand to their maximum potential. The desirable end result, of course, is one of maximal inhalation with a minimum of effort.

Figure 10-2 is an illustration of how the Jacobs Complete Breath works. Note that the movement of the rib cage is compared to that of a handle on a water bucket. When the handle is raised (inhalation), it has to move outward and upward in order to reach the top (peak of inhalation). When the handle is lowered (exhalation), it moves outward and downward (point of rest).

### THEORIES OF EXHALATION AND BREATH CONTROL

During forced exhalation as used in singing and wind playing, there are three primary things a performer needs to be able to do:

1. Sustain a long tone or phrase with a continuous stream of air.
2. Vary air flow at will in order to perform accents, slow, short staccato, subito piano, sforzando and other nuances as well as alter the dynamic level and intensity of individual tones and phrases.
3. Regulate air volume and air pressure in accordance with the unique requirements of a given instrument and the register being used.

In discussing these functions, teachers sometimes discuss one or all of them collectively, using such terms as diaphragmatic support, breath support and breath control. Such synonymous usage is indeed unfortunate, since these terms do not really mean the same thing. To begin with, the term "diaphragmatic support" should not be used at all. As was pointed out in Chapter Nine, the diaphragm is relaxed during exhalation and thus is nonfunctional. The term "breath support," however, is a functional term but is limited mainly to the function described in item 1. Breath control, on the other hand, is the more encompassing term, and includes all three functions.