

## DCP RESOURCE MODULE 7 VOCAL PRODUCTION

### VOCAL SKILLS by Carolyn Butler

#### POSTURE

A large measure of good vocal production depends on the development and maintenance of good posture during the act of singing.

Good posture starts with an erect carriage, with weight forward on the balls of the feet. The sternum and upper chest is held in a high position, with a feeling of width and expansion across the upper chest. The pelvis should be "tucked under" so that the small of the back is pressed against an imaginary wall. The top and back of the head should be stretched tall with the chin held horizontal to the floor, neither pulled down nor jutting forward. The shoulders need to be comfortable and not allowed to pull up toward the ears or pulled back with tension.

Addendum 1 contains exercises to start you on the road to good posture.

#### RESPIRATION

Proper inhalation is performed with a dropped, relaxed jaw and open throat. This results in a low larynx which, in turn, results in a silent breath. Noisy inhalation is the result of a high larynx. Maintaining a space between the upper and lower back teeth, and holding the tongue lightly against the lower teeth gum ridge aids in lowering the larynx during inhalation.

#### CLAVICULAR / UPPER CHEST / SHOULDER BREATHING

This type of breathing is best described as "chest heaving" and is associated with emotional upset or with exhausted athletes who have a need to replenish oxygen in the body at a rapid rate. If this type of breathing is used by a singer, hyperventilation may result because of the imbalance of oxygen and carbon dioxide it causes. A singer can help prevent this type of incorrect breathing to a large measure by maintaining good posture.

#### DIAPHRAGMATIC / ABDOMINAL BREATHING

Two sets of muscles other than the diaphragm (also a muscle) are involved in this type of breathing, which is correct for singing and speaking: the transverse and oblique abdominal muscles, and the intercostal muscles. The intercostal muscles also contain two sets.

#### INHALATION AND EXHALATION

During inhalation, the lower abdominal muscles relax, allowing the abdominal bulk to drop down so that the diaphragm may lower for full lung expansion. The entire rib cage is expanded

outward by one set of intercostal muscles. During exhalation, the lower abdominal muscles lift upward and inward, lifting the abdominal bulk up against the diaphragm. The inner set of intercostal muscles contracts, pulling the ribs downward. This process occurs each time we complete a cycle of inhalation/ exhalation.

#### SUPPORT

During the act of singing, the singer must resist the urge to use the intercostal muscles, which pull the rib cage down and cause it to contract. The conscious maintenance of an expanded rib cage will result in a process of respiration controlled only by the lift/drop of the lower abdominal muscles. This aids the singer in maintaining a relaxed, open throat and a supported tone.

See Addendum 2 for exercises to improve and strengthen breathing and support mechanisms.

#### PHONATION

The act of phonation or producing a sound is dependent on one's ability to coordinate the breathing muscles with the vocal mechanism.

#### CLOSING THE GLOTTIS

The glottis (space between the vocal cords) can be closed three different ways, and one *can* sing and speak using any of the three methods. Two ways are incorrect methods for singing and speaking; they can lead to many vocal problems and actual vocal damage if used over a long period of time.

##### 1. Using the Swallowing Muscles

This particular "team" of muscles is among the strongest in our bodies. As a matter of fact, our sucking, swallowing and chewing muscles have been working since *before* we were born. Place your little finger between your teeth. Swallow. All of these muscles are involved in that one single act. Your lips purse, the tongue pulls back and upward, the sphincter muscle behind the soft palate closes, the jaw tightens, teeth come together, and the larynx rises. The vocal cords close very tightly, the "false" cords above the vocal cords close, and then the epiglottis folds over the vocal cords in order to seal out any foreign matter from entering the trachea and lungs.

Consider this: If *any one* of this team of muscles is used or tensed during singing or speaking, interference is created and the vocal cords pull together too tightly to vibrate freely and produce the best tone of which we are capable. Because this team of muscles is accustomed to working together, it is safe to assume that if *one* is involved, then the whole team is involved to some degree.

A tone produced with the swallowing muscles has a "tight" sound. It lacks resonance, depth and that beautiful "soaring" sound that a free tone has. This is the reason that all vocal teachers insist on freedom in the jaw/throat/tongue area. Vocalizing with a manually lowered jaw helps to start training the whole group of muscles to release their tension during phonation. Invaluable are tongue exercises that train and strengthen the groups of

muscles within the tongue that do the opposite of swallowing. Humming exercises with the lips held *lightly* together and the back teeth wide apart are also helpful in focusing the tone forward and, at the same time, releasing tension in the throat.

Not only does phonation with swallowing muscles lack the beauty of properly phonated sound; there is danger of vocal damage. This damage can occur because the vocal cords are pulled together too tightly, therefore actually touching in one or more places during the act of phonation. They become irritated, produce hoarseness and metallic sounds, and may develop nodes at the points of contact.

## 2. Using the Down-pulling Abdominal Muscles

The second incorrect method of phonation causes the vocal cords to come together by action of another set of lower abdominal muscles that pull downward. These muscles are used during childbirth, elimination of wastes from the body, and the lifting of heavy objects. All of these functions require that the vocal cords be closed, which in turn helps to build up inner thoracic pressure.

Phonation is *possible* when one is singing or speaking in this manner. In fact, some of you may have been taught to sing by "bearing down." This method of closing the vocal cords also pulls them together much too tightly to produce a free tone. The development of nodes is even more probable with this type of phonation. To experience this type of muscle action, take a big breath, hold it, then place your hands under the sides of your chair and try to "pick yourself up." You probably can feel the "bearing down" in your lower abdomen. You will also experience much tightening and tension in the area of the larynx.

## 3. Using the Transverse and Oblique Lower Abdominal Muscles

By their lifting action, these muscles also cause the closure of the glottis. Using these muscles, we are able to pull the vocal cords close enough together to produce a clear tone but not so close that there is interference with their free vibration. The action of lifting inward and upward using these lower abdominal muscles lifts the abdominal bulk up against the diaphragm. This action stimulates the phrenic nerve, which in turn sends a message to the brain and then through the vagus nerve to the vocal cords, telling them to close.

Actual closure of the vocal cords is caused by two small swivel-type cartilages known as the arytenoids, which swing around and pull the vocal cords close together. It is a reflex action. These same lower abdominal muscles are involved in the act of vomiting and coughing. This type of glottis closure is correct for singing and for speaking. The development of these muscles is essential to all singers. (Refer to Addendum 3.)

## PHYSICAL SIGNS OF INCORRECT VOCAL TECHNIQUE

Several physical signs can be an indication of incorrect vocal technique:

- Upward motion of chest and shoulders during inspiration
- Downward push or sinking motion of the sternum bone and collapsing of lower rib cage during exhalation

- Clenched teeth, lips pulled over teeth, jutting or lifted chin, or chin pulled down and back
- "Sway" in lower back or weight on heels; distended neck muscles
- Distended, tense lower abdominal muscles
- Mylo-hyoid muscle under chin is contracted and hard, as in the action of swallowing
- Tongue pushed back toward throat
- Movement upward of jaw during the act of phonation or during release of tone
- Shoulders tense and pulled up toward ears or back
- Much movement of the upper body during singing
- Pain in the area of the larynx, hoarseness, constant throat clearing, chronic laryngitis, raspy or breathy sound during speaking or singing, chronic out-of-tune tones, or metallic sound in voice.

## SOME GENERAL CONSIDERATIONS

### BREATHING

All good singers must become expert breathers. Maintaining a good posture and learning to breathe correctly will start you on the way to improving your voice. If we improve any part of our vocal or breathing mechanism, the whole voice improves.

Always breathe silently, not through a closed throat. Noisy breathing always is a result of excessive throat tension. The larynx is raised and in this position the vocal cords expect the act of swallowing, so the false cords are partially closed along with a partially closed epiglottis. Air inhaled through this resulting smaller opening makes a sound.

We must understand our own voices before we can teach others. Good vocal techniques take time to learn. There is no such thing as instant vocal production.

As we begin to retrain bad singing habits and encourage chorus members to use the proper breathing muscles to close the glottis, there may be a period of time when the singers produce worse sounds than before. This condition occurs because the new muscles are not yet coordinated and are really not strong enough to carry the vocal load. Patience and time takes care of this problem. When a director decides to institute a systematic program of good vocal production, and is persistent, the chorus will ultimately start to sing better.

### MUSCLE CONDITIONING

One of the most important phases in the training of the voice is the attainment of the proper condition of tonus (muscle tone). In the early stages the work that must be done in order to sing the best possible tone, from the physiological point of view, requires an effort that is much greater than is necessary for the actual production of the tone itself, since there is a great deal of muscular interference to be overcome. Thus, a beginner will have to work very hard; as she advances, the effort will rapidly become less.

This effect is magnified by reason of the fact that the muscles used during the act of phonation are, at the start, usually very weak and their coordination is poorly developed. Effort is, in a sense, a relative matter, depending upon the strength and number of muscles involved. So it is with the muscles of the voice; when they are weak the effort seems to be very great, and as they become stronger it appears to diminish. All that is really happening is that the muscles are becoming stronger and the apparent effort is therefore decreasing.

During the course of training, much of the singing done must be loud since, as has been emphasized, we are developing muscles and, in order to do this, they must be vigorously exercised. The *pianissimo* tone should be one of the last phases of the technique to be taught. It is, in practically every case, the worst feature of the beginner's technique.

#### VOCAL DAMAGE

The voice can be damaged by using *wrong force*, *wrong pitch* and *wrong breathing*. The use of wrong force is the basis of most voice disturbances. Wrong force can be used at any part of the vocal tract. Six locations of such hyperfunctions (the use of too much muscular force) have been identified:

1. **The muscles that close the glottis:** By closing the glottis with the swallowing muscles or with the abdominal down-pulling muscles, the vocal cords are pulled together too tightly and result in glottal attacks.
2. **The area just above the vocal cords:** Too much force in this area results in *self-strangulation* of the voice. The strong contraction of the pharyngeal muscles in the lower throat creates a bottleneck that gives the voice — of both singer and speaker — a characteristic constricted quality.
3. **The muscles of the base of the tongue and the opposite part of the throat:** This type of hyperfunction results in a voice that sounds as if a hot potato has stuck in the throat. It gives the singing voice a rather unpleasant, muffled quality that can be heard in singers with poor technique.
4. **Excessive tension of the soft palate,** resulting in a flat voice without proper nasal resonance
5. **Stiffening of the jaw muscles:** This is closely related to number one and results in a tight-sounding tone.
6. **Stiffness of the tip of the tongue and lips,** the result of overarticulation.

#### OTHER CONSIDERATIONS

Following are some general considerations quoted from a lecture given by Hans von Leden, M.D., Laryngologist, in May 1977:

- Singing is a far more complex phonation than speaking, with 100 different sets of muscles involved.
- Nodes occur where there is the greatest motion — at the junction of the anterior and middle thirds of the vocal cords.

- Next to coughing, smoking is one of the very worst offenders. Debris from smoke collects on the vocal cords — tiny elements of dust and dirt.
- Changes in a woman's life cycle affect the voice.
- Birth control pills (particularly those containing progesterone), which are hormones, have a tendency to affect the voice.

Certain individuals (not certain voice types) are more susceptible to laryngitis than others. The higher the voice, the greater the ill effect because of frequency and clarity. Laryngitis is a swelling of the vocal cords — they become too swollen to move or close properly.

We should probably also mention that many individuals are plagued by allergies. A good nose and throat doctor may be able to help these singers keep their allergies under control. Allergies that cause swelling or irritation of the nose/throat area are detrimental to good vocal production.

#### BREATH SUPPORT

During the period of time that Sweet Adelines education has been directed toward good vocal production, much emphasis has been given to the relaxed jaw/throat/tongue area and to the lift/drop action of the lower abdominal muscles. It is important that we also stress the importance of *good breath support*.

The following is a quotation from Wilmer T. Bartholomew (see the bibliography):

There are two ways of controlling the expiration of breath. One is by restricting the flow at the larynx itself, with the laryngeal area acting as a valve. But this cannot be done without the assistance of the throat-constricting muscles, which is very detrimental to the quality of the voice ... the constrictors and the "pillars" should be as relaxed as possible for the particular pitch being sung in order to permit as large a throat as possible. The breath expiration should therefore not be controlled at the throat. The correct way is through balancing the two sets of muscles which control expiration and inspiration. These are, respectively, the large abdominal, which lift inward and aid in expiration, and the diaphragm, which contracts downward to enlarge the lungs in inspiration. When these are both in operation simultaneously, opposing each other in a nicely adjusted coordination without undue tension, the diaphragm "holds back" in its relaxation sufficiently to slow down the air flow to the proper point. In this way the breath may be inspired or expired at an extremely slow rate if necessary, while at the same time the throat is permitted to remain wide open except for the apposition of the cords, which need have no undue tension beyond that necessary to maintain vibration at the intended pitch and loudness.

The only way to "hold back" the diaphragm is to maintain the rib cage in an expanded position during exhalation.

## ALL-PURPOSE BODY RELAXATION / STRETCHING AND STIMULATING EXERCISES

1. Stretch with hands, palms up, toward ceiling. Stand on toes. Alternate hands toward ceiling, palms up, stretching first the right side, then the left, several times.
2. "Grip" the floor with toes and heels, feeling tightening of thighs and buttocks. With arms at sides, palms toward the back, fingers together, swing arms backward to a 45-degree angle with as much strength as possible, allowing breath to be expelled from the nose at the same time. Allow arms to swing naturally forward, then repeat process. Each cycle of backward push and forward swing should take about one second. Start with ten per day and work up to 50 or more.
3. Roll shoulders forward in a circular motion about ten times, then reverse direction.
4. Roll hips in a circle as in using a hoola-hoop, first clockwise, then counterclockwise about ten times.
5. Pull right knee up to chest five times, then left knee.
6. Slide both hands down legs to ankles, bending knees if necessary.
7. Exercise face muscles by scrunching them forward with the eyes shut in a frown and an exaggerated silent "oo" sound with pursed lips, then stretching mouth as wide as possible with eyes opened wide and eyebrows up. Alternate about ten times.
8. Manually lower jaw so that back teeth are wide apart. Repeat about ten times.
9. Stick tongue out as far as it will go, stretching it down toward chin and then toward each side. Repeat several times.
10. With mouth wide open, stick tongue out and move it from side to side as fast as possible.
11. With tip of tongue anchored at gum ridge of lower teeth, alternately lift and roll forward the middle and sides of the tongue and then allow it to drop back into normal position. Mentally say the word "yaw" as fast a possible without moving the jaw.
12. Any exercise designed to stimulate, stretch or make body more loose and flexible. Any exercise designed to relax the head, neck and shoulders and, in particular, the jaw/throat/tongue area.

## EXERCISES FOR IMPROVING RESPIRATION AND BUILDING SUPPORT MECHANISM

1. Lie on the floor with a heavy book on the abdomen. Breathe normally several times. Become conscious of book rising toward ceiling as you *inhale* and *dropping* toward floor as you *exhale*. Exaggerate this movement. Repeat several times.
2. Full breath standing. Lift both arms up above head with arms close to ears as you rise up on your toes. At the same time, inhale through the nose. After a full breath has been taken, place palms together, stretching as high a possible, and hold breath to count of six. Repeat five times.
3. With hands behind head, elbows high and straight out, back straight, weight forward, pelvis tucked under, inhale rapidly by allowing lower abdomen to "drop." Exhale to sound of ten by "rolling up lower abdomen as if it were a window shade." Give extra "tuck-up" of abdominal muscles on count of ten. Hold breath to count of five. Then drop/relax lower abdominal muscles and inhale quickly. Repeat process five times.
4. With upper chest held high and wide, alternately expand and contract rib cage. Do this while *holding* your breath if at all possible. If necessary, inhale and exhale while expanding and contracting.
5. Inhale by expanding lower rib cage as far as possible. Hold your breath by this action with throat held open. Pant, using abdominal muscles. Note that the air stays in your lungs by action of holding out the rib cage while panting.
6. Inhale as in exercise 5. "Hiss" out breath between teeth to count of twenty. Do not let lower rib cage collapse downward until absolutely necessary. Never let the sternum bone collapse downward. Keep upper chest as wide as possible during entire exercise. Repeat five times.
7. Same exercise as above, but instead of "hissing," count aloud to twenty. Work up to forty counts over a period of time.
8. Intermittent breathing. Inhale in five separate movements. Lower abdomen relaxes and drops down in five distinct movement. Exhale to five counts. Lower abdominal muscles will roll up and inward in five distinct movements.
9. Inhale quickly by allowing lower abdominal muscles to relax and drop down. Lift lower abdomen in eight quick motions, shaking the breath out in a "silent laughter." Do not allow chest to fall during exercise.
10. Exhale. Bend over with hands on knees. Now alternately lift and drop lower abdomen ten times. On count of ten, hold abdomen in upward position to a count of five.

## EXERCISES TO PROMOTE ACTIVATION OF THE REFLEX MECHANISM THAT CLOSES GLOTTIS

1. Hold index finger in front of lips. With quick upward lift of lower abdomen, blow out imaginary candle.
2. With lips lightly together and back teeth apart, gently make an "H" sound, starting the tone by a gentle lifting up and inward of lower abdominal muscles. Place one hand on lower abdomen and help pull it in, if desired. Make long, sustained sounds, then shorter, more staccato "hummph," as if in disbelief. Then alternate long and short tone. Jaw/throat area should be relaxed, with tip of tongue held lightly at gum ridge of lower teeth. Maintain proper posture.
3. With jaw dropped down and tongue resting lightly behind lower teeth, pant gently. Then alternate pant with a gentle tone.
4. Staccato bark. With manually lowered jaw, produce a dark, low sound using a "Ho." Do not allow jaw or lips to move at beginning, middle or finish of tone. The lower abdomen will snap upward with each bark.
5. Rotation. With manually lowered jaw, produce a dark, low sound, using a "Yo." Alternately lift and drop lower abdomen, producing a continuous tone that drops about four whole intervals as the abdomen relaxes and then lifts four tones as abdomen contracts upward. Lift and drop abdomen five times, using "Yo-oh-oh-oh-oh." Repeat five times. Abdomen will feel as if it is making small circles, first in and up, then over and down, for each rotation. Work for a continuous sound.
6. Using a manually lower jaw, produce a "Yug-ho" in a low, comfortable range. The lower abdomen will lift to produce a gentle staccato tone on "Yuh," then lift more firmly to produce a quick staccato on "Ho." Jaw/lips should show no movement during the exercise. The only movements are the tongue, making the "Y" sound, and the lower abdomen.
7. With lowered jaw, relaxed throat and tongue, produce a low sound. Say four consecutive "Ho's," using four lifts of the lower abdomen. Quickly relax abdominal muscles, inhaling as you do so, then lift four times as you repeat four "Ho's." Keep a steady rhythm, breathing in between each set of four "Ho's."

## **Reminders and Checklist for Posture and Breathing**

- A. Posture checklist from toes to head: Feet slightly apart, one foot slightly ahead of the other, stand on the balls of the feet, knees flexed, turn thighs out slightly to release tension and any tendency towards swayback in lower back, keep abdomen relaxed for breath intake, lift rib cage high and wide, relax shoulders, stretch tall to top of head, remember the inside smile and keep a twinkle in the eyes.**
- B. Watch for shoulder and/or neck tension when working with the expanded rib cage and resisting the collapse of ribs.**
- C. Some singers will revert to reverse breathing when working the abdominal muscle exercises. Watch for this and take time to get them back on the right track.**
- D. There are some singers who carry very tense abdominal muscles (even when not singing) and who have difficulty relaxing these muscles in order to achieve maximum air. This is often caused by muscle memory after years of "holding in their stomachs" so the muscles tense and it becomes difficult to get them relaxed and keep them relaxed when inhaling. Reminders and relaxation exercises will help reverse this muscle memory.**
- E. Encourage singer to expand through the back region as well as rib expansion in front of the body. To assist the singer have her lean forward on the back of a chair or over the edge of a countertop and have her inhale slowly to feel the expansion across the back.**
- F. Remind the singer to restate the "perfect" posture with every breath. Resist gravity as singing and rehearsing continue. Our musical instrument does tire (unlike the tuba)!**
- G. Be certain that the singer is inhaling through an open, relaxed throat.**

# 16 Vowel exercise

Proceed through all 16 vowels in order.

Move up or down a half pitch before going to the next vowel.

Note what each singer needs to do to produce the correct vowel, focus, resonance and ring to match the other's voices [blend].

Keep the target vowel true as you sing through the range.

We Sit Late Men, Have Hind Heart Sun, Mute Moon Full Urge, Long Go Now Joy

The first system of musical notation consists of two staves: a treble clef staff and a bass clef staff. The treble staff contains three notes, each with the word "we" written below it. The notes are on the lines G4, B4, and D5. The bass staff contains three notes, each with the word "we" written below it. The notes are on the lines G2, B2, and D3. The key signature has one flat (Bb).

The second system of musical notation consists of two staves: a treble clef staff and a bass clef staff. The treble staff contains a series of notes, each with the word "we" written below it. The notes are on the lines G4, A4, B4, C5, D5, E5, F5, and G5. The bass staff contains a series of notes, each with the word "we" written below it. The notes are on the lines G2, A2, B2, C3, D3, E3, F3, and G3. The key signature has one flat (Bb).

The third system of musical notation consists of two staves: a treble clef staff and a bass clef staff. The treble staff contains a series of notes, each with the word "we" written below it. The notes are on the lines G4, A4, B4, C5, D5, E5, F5, and G5. The bass staff contains a series of notes, each with the word "we" written below it. The notes are on the lines G2, A2, B2, C3, D3, E3, F3, and G3. The key signature has one flat (Bb).

The fourth system of musical notation consists of two staves: a treble clef staff and a bass clef staff. The treble staff contains four notes, each with the word "we" written below it. The notes are on the lines G4, A4, B4, and C5. The bass staff contains four notes, each with the word "we" written below it. The notes are on the lines G2, A2, B2, and C3. The key signature has one flat (Bb).

## BIBLIOGRAPHY

- Bescos, Joni. DCP Resource Manual, Module 7. Vocal Physiology and Process. Sweet Adelines International. 1997.
- Bescos, Joni. DCP Resource Manual, Module 7. The Healthy Voice. Sweet Adelines International. 1997.
- Butler, Carolyn. DCP Resource Manual, Module 7. Vocal Skills. Sweet Adelines International. 1997.
- Caldwell, Robert. The Singer's Voice. Resonance. Teacher's Pack and Video. Pst...Inc. 1995.  
P.O. Box 800208, Dallas, TX 75380.
- Clipman, Betty. DCP Resource Manual, Module 7. Vocal Production. Cassette Tape. 1997.
- Conable, Barbara. The Structures and Movement of Breathing. GIA Publications, Inc. 2000.
- Judging Category Description Book. Guide to Vocal Skills. Sweet Adelines International. 1989.
- Henderson, Larra Browning. How to Train Singers. 2<sup>nd</sup> Edition with Taped Exercises. 1991.
- Oleson, Karen. I'm Not Crazy, I'm Vocalizing! Cassette Tape and Guide. Voice Tech. 1991.  
P.O. Box 61395, Seattle, WA 98121.
- Sloan, Carolyn. Finding Your Voice. Hyperion. 1999
- Wall, Joan and Caldwell, Robert. The Singer's Voice. Breath. Teacher's Pack and Video. Pst...Inc. 1991.  
P.O. Box 800208, Dallas, TX 75380.
- Wall, Joan and Caldwell, Robert. The Singer's Voice. The Vocal Tract. Teacher's Pack and Video. Pst...Inc. 1993.  
P.O. Box 800208, Dallas, TX 75380.
- Wyatt, Roland. Guideposts to Singing. Cassette Tapes for Soprano and for Tenor. Roland Wyatt Voice Studio. 1989.  
P.O. Box 771264, Lakewood, OH 44107.

IES 2008

Section Leader Workshop Part 1

Molly Huffman

**THE MOST IMPORTANT THINGS I HAVE LEARNED  
IN THIS CLASS ARE....**

**I CAN GO BACK TO MY CHORUS/SECTION AND BE  
ABLE TO...**

**I WANT TO LEARN MORE ABOUT...**