

## **Singers and Stress—How to Manage Your Body’s Responses**

(Adapted and updated 2013 by Dr. Maureen Balke from National Association of Teachers of Singing national conference poster session, “Learning to Manipulate the Physiology of Stress” ©2005 Marty Heresniak.)

### **Theory**

The human body has many different systems that are in charge of different processes. The dominant system in a given situation can change and can be changed. If you understand the systems, and understand what triggers each system, you can understand how to make desired changes!

The **Autonomic Nervous System (ANS)** is in charge of the continuing day-to-day functioning of the body – heartbeat, circulation of blood and lymph, digestion, respiration, etc. – without conscious control.

The ANS has two sub-components: the SYMPATHETIC ANS and the PARASYMPATHETIC ANS. These two ANS sub-components are in control of day-to-day functioning under different conditions, usually with opposing actions (1).

### **SYMPATHETIC ANS**

The body’s **“Fight or Flight”** system: when the body is on task or in emergency.

Operates through thoracic and spinal nerves; a primary system, with early evolutionary and embryonic development. (2)

Used in order to fight, run, react, protect (1).

- Heart rate rises.
- Muscle tension rises.
- Bloodflow INCREASES to large muscles (thighs, upper arms, upper body strength).
- Bloodflow DECREASES to extremities, digestion.
- Respiration shifts toward clavicular breathing (to oxygenate blood for emergency, action).

Symptoms:

- Palpitations, heart pounding, blood thundering in ears
- General tightness, especially in thighs, shoulders, neck
- Nervous arm and leg movements
- Cold hands and feet
- Need to urinate/evacuate bowels
- Nervous pulling in of abdominal walls (“protect” instinct)
- Can’t catch breath, rapid high breathing, hyperventilation.

## **PARASYMPATHETIC ANS**

**“Rest and Relax” (R&R)** response; when the body is at rest, sated, rejuvenating; the “after a big meal” relaxation. Also called **(CC&C), “Calm, Comfort, and in Control.”**

Operates through brain stem and sacral nerves; a secondary system, coming later in evolutionary and embryonic development than the Sympathetic ANS.(2)

Used in order to sleep, relax, digest, ruminate (1).

- Heart rate lowers
- General muscle tension lowers
- Bloodflow INCREASES to major organs (digestive system)
- Bloodflow AWAY from large muscles
- Respiration shifts to abdomen via tidal breath of diaphragm.

Symptoms:

- Heart unnoticeable
- Relaxation (can approach lethargy)
- Feeling of fullness, possible digestive gurgles if after meal
- Relaxed “spread” of abdominal walls
- Relaxed legs, shoulders, neck
- Slow, deep breathing.

## **TRIGGERS**

SYMPATHETIC ANS is triggered by danger, excitement, mental anxiety, unfamiliar interpersonal situations.

PARASYMPATHETIC ANS is triggered by END of danger, excitement, anxiety; and by eating, and by interpersonal comfort.

More specifically:

SYMPATHETIC ANS is triggered by BLOOD CHEMISTRY moving toward alkaline pH.

PARASYMPATHETIC ANS is triggered by BLOOD CHEMISTRY with more acid pH. (3)

## **What Does This Mean?**

You can CONTROL “nerves” in any stressful situation, including going onstage to sing/perform, by consciously manipulating your own Blood Chemistry pH.

## **OK, So How Do I Control Blood Chemistry pH?**

Higher oxygen component in the blood == more alkaline pH, triggering Sympathetic ANS “Fight or Flight” reaction. (Your body needs more oxygen to fight or flee.)

Lower oxygen/higher CO2 component in the blood == more acid pH, triggering Parasympathetic ANS “Rest and Relax” (R&R) reaction, or “Calm, Comfort, and in Control” (CC&C) feeling.

THEREFORE, to SHIFT from “fight or flight” Sympathetic ANS to “rest and relax” Parasympathetic ANS, you want to INCREASE the CO2 level in the blood.

### **How Do I Do That?**

All of these can help:

Muscle relaxation techniques; educational kinesiology exercises; psychological techniques to dispel worry; and **conscious breathing training**.

### **Conscious Breathing Training:**

How NOT to do it: “Take a good, deep, cleansing breath” is BAD advice because over-breathing actually drops CO2 levels, the exact opposite of what you want.

How to do it right: Breathe **differently**. Keep breaths IN for longer, don’t exhale as much, and let CO2 levels build up in bloodstream. For example:

- Exhale through a straw or small mouth opening (as in Dr. B’s “Tables” or “Rowing” exercises) (8). This slows exhalation of CO2, which is a GOOD thing.
- Count off: Breathe while counting, and exhale for a longer count than you inhale (as in Dr. B’s “Tables” or “Rowing” exercises).
- Square Breathing: (4x4) = 4 counts in, 4 counts hold; 4 counts exhale; 4 counts hold.

Do it for a long time: Using any of the above techniques, a few breaths won’t do it; keep working at it ideally for 10-12 minutes. If that time is not available, you should still notice a feeling of greater calm and control even after a few minutes of Square Breathing.

Don’t wait till performance nerves to try it: Practice these techniques often, consciously, diligently, so that they become habit, a part of your vocal technique.

## Additional Exercises and Preparations

### Muscular: Reduce Rigidity

- Roll shoulders (backward rolls preferred)
- Straighten spine (fixes posture, raises ribcage off abdomen, allowing lower breath; and increases bloodflow to lower torso)
- Open ribcage, raise breastbone (sternum) (Margaret Harshaw's "meat-hook" metaphor)
- Dr. Balke's "neck tension" exercise (originally for violinists) (9)
- Find neutral posture; lie down if you can

Neurological: Try Brain Gym ® educational kinesiology: employs body movement to integrate brain (6). Also "Cook's Hook-Up." (see End Notes)

### Psychological: Avoid Toxic Worry! (7)

#### Connect with others!

- Don't worry alone
- Connect with another to shut down fear centers & open pleasure centers
- Hugs are great!

#### Know your facts, and your music: therefore, confidence.

- Practice, know your music: NOT just well enough to get through it, or until you can get through it without mistakes, BUT rather, practice until you CANNOT make mistakes!
- Lack of info (technique, pitches, rhythms, diction, translations, etc.) causes worry and doubt.
- Wrong info can be just as bad!

#### Have a plan! Action and preparation conquer worry.

- PLAN for every contingency you can!
- Plan your extra, just-in-case breath;
- what if you forget an entrance, or come in early, or start the wrong verse;
- what if you or your pianist forget a repeat;
- what if you forget the words;
- what if your parents or friends start loud applause before your first song set is done;
- what if someone in the audience makes distracting noise (coughing, a baby crying, people talking);
- what if someone in the audience makes faces at you, or stomps down the aisle and slams the entrance door in the middle of your song?

Pre-plan with healthy living!

- Eat right
- Plenty of good sleep
- Exercise and stretch
- Prayer/Meditation/Personal Time
- Human contacts

Finally: Let it go!

- Don't fall in love with your stress: you may THINK "I do my best work under stress/with a deadline" BUT if you have never done it any other way, how would you know?!
- Be familiar with your stress; recognize it when it's there, and you can act to make positive changes.
- Learn what your stressors are (classes, roommates, family issues, finances, deadlines, other pressures, etc.) and try to consciously avoid them, or make positive changes.
- If things do get to you, take the long view: will it matter, 100 years from now? Let it go!

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- 1) See the Nicholas Quarrier Healthy Musicians Workshops at Ithaca College, NY: <http://www.ithaca.edu/cess/healthymusician/index.htm>
  - 2) Edward Alcamo, The Princeton Review Anatomy Coloring Workbook. NY: Random House.
  - 3) Rosalba Courtney, "Breathing: The Role of Carbon Dioxide," in *Massage Magazine*, Sept/Oct.1998, pp. 62-65.
  - 5) Christopher Gilbert, "Hyperventilation and the body," in *Journal of Bodywork and Movement Therapies*, 1998 2(3) 184-191.
  - 6) <http://www.braingym.org>
  - 7) Edward M. Hallowell, "10 Tips on Managing Worry Without Using Medication" Summary slideshow "10 Steps" at: [www.huffingtonpost.com/edward-m-hallowell-md/stop-worrying\\_b\\_1543122.html](http://www.huffingtonpost.com/edward-m-hallowell-md/stop-worrying_b_1543122.html).
  - 8) Dr. Balke's "Rowing" exercise is similar to bench-pressing, only sitting on the edge of a chair. With elbows bent and fists at shoulder height, several inches wider than shoulder width, either use a prop (such as broom handle, or Dr. B's toy scythe or axe handle) or imagine you are grasping the pole of a set of weights you are going to lift/push straight out. As you push, push also with feet/legs against floor, and exhale as if blowing through a straw. Do NOT collapse inward as in Ab Crunches—instead, stay tall, use lower abs, and become TALLER as you exhale. Exhale for a slow count of 8. Repeat several times.
  - 9) Neck tension exercise: scrunch up shoulders strongly, as if trying to get them to touch your ears. Hold/maintain for at least 15 seconds. Inhale, then at the same time throw your shoulders down and exhale strongly.