

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.
 - 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.