

Robert T. Sataloff, MD, DMA, Associate Editor

Singers: What is Normal?

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Mary J. Hawkshaw



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PEOPLE HAVE KIDDED FOR CENTURIES about singers being something other than “normal.” In fact, many of the best singers aren’t normal: they are exceptional. However, most of these observations have been good-natured anecdotes about personality and disposition, not scientific observations. From a medical standpoint, it has turned out that many of us are not “normal” physically even when we have no symptoms. A great many singers have baseline physical findings that most otolaryngologists would interpret as pathologic. So long as such abnormalities do not affect voice technique or quality, they need not be treated. However, singers should know about them. If they are discovered for the first time when a singer seeks medical care for a voice problem, a physician is likely to ascribe the voice problem to the abnormality seen. This common and understandable error is hard to avoid unless the singer has had a baseline comprehensive voice evaluation and knows his or her laryngeal findings when “healthy.” We have been performing such examinations for students at the Academy of Vocal Arts since 1980; and there are many outstanding graduates performing at the Metropolitan Opera and elsewhere who have small cysts, mild vocal fold weakness, reflux, and other findings that have not interfered with their singing careers and success. However, if they were misdiagnosed as causing a new voice problem and were treated, especially by surgery, the unnecessary treatment certainly could affect a career adversely. This problem has been avoided by arming these singers with knowledge of their baseline “normal” vocal fold condition, and, if abnormalities are seen, by way of photographs and sometimes videos with which they travel so that doctors in other states and countries can know what they look like when they are healthy.

A few studies have looked at this issue more formally than our anecdotal observations summarized above. In 1996, Elias et al. reported on stroboscopy findings performed on 65 healthy, asymptomatic professional singers.¹ Fifty-eight percent of them had abnormal findings: 42% had laryngopharyngeal reflux, 6% had vocal fold asymmetries, 3% had nodules, 3% had cysts, 3% had varicosities, and 1.5% had vocal fold paresis (weakness).

A 1999 study by Lundy et al. on 65 singing students reported that 73.4% had laryngopharyngeal reflux, and 8.3% had vocal fold masses (two with nodules, three with cysts).²

In 2001, Heman-Ackah et al. published a preliminary study of stroboscopy findings in singing teachers.³ The study included 20 volunteers at a convention of the National Association of Teachers of Singing (NATS), 13 of whom were reportedly normal, and several of whom

had voice complaints. Most of the subjects in this study were women (13 sopranos, 3 mezzo sopranos, 1 alto). All 20 sang classical music. In the group with no vocal complaints, all had reflux, 62% had a vocal fold cyst, 8% had a vocal fold polyp, 77% had varices, 23% had sulcus vocalis, 8% had Reinke's edema, 8% had vocal fold scar, 8% had a saccular cyst (an abnormality above the vocal fold that did not affect voice), and 23% had vocal fold paresis.

Reulbach et al. published an interesting study in 2001.⁴ They assessed 100 adults (not singers) over the age of 40. None had a history of voice problems. Still, 64% had laryngopharyngeal reflux, 72% had vocal fold bowing, and only 12% had "normal" laryngeal examinations.

The most recent study involving singing teachers was carried out at a NATS conference in 2008,⁵ and involved 72 volunteers (60 females, 12 males), all of whom were trained singers without significant voice complaints that were found to have vocal fold pathology during stroboscovideolaryngoscopy in 86.1% (62 of 72 subjects), many of whom had more than one abnormality. Using criteria used in previous papers, 72% were found to have signs

suggesting laryngopharyngeal reflux. Using the Reflux Finding Score (RFS), an instrument that has become used fairly widely, the number was substantially lower (16.7% of women, 25% of men). It remains unclear whether reflux is overdiagnosed using traditional guidelines, or underdiagnosed using the RFS, but we suspect that it is more the latter than the former. 72.2% had arytenoid erythema/edema, and 63.9% had posterior laryngeal hypertrophy; all of these signs commonly are associated with reflux. 34.7% had incomplete glottic closure. 18.1% had varicosities or ectasias. 16.7% had structural abnormalities (masses such as nodules or cysts). 15.3% had paresis, and 5.6% had evidence of vocal fold scar.

This study also reported acoustic analysis on this population of healthy singers, revealing many measures that are outside the parameters which voice laboratories define typically as "normal." The findings suggest the need for reassessment of normal values for acoustic analysis of trained singers.

Regardless of minor differences in findings, it is clear from all of the studies to date that singers, and even nonsingers, have a high prevalence of findings that physicians would diagnose as abnormalities. The authors have found an even higher incidence of structural abnormalities such as scar in professional motivational singers and speakers or professional athletes (unpublished data), just as we would likely find a high incidence of knee abnormalities in football players or elbow abnormalities in tennis players. Like other athletes, the presence of impairments, illnesses, and old injuries does not necessarily preclude superior performance. However, it may. Hence, it is important for physicians to be able to sort out which abnormalities are long-standing and asymptomatic, and which may be new and causing a current voice complaint. It is prudent for singers and their teachers to do everything possible to assist their medical professionals in making such diagnostic judgments accurately should be done. For singers, knowing the "normal" condition of their own bodies is invaluable.

Physical "abnormalities" are common in healthy, asymptomatic singers and singing teachers. It is extremely helpful for singers to undergo expert laryngological evaluation including high-quality stroboscovideolaryngoscopy when they are healthy and singing well. Singers should be aware of any unusual laryngeal findings, and should request photographs or videos of any



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important abnormalities so that they can inform their physicians of their own personal baseline “normal,” in order to help assure proper diagnosis and treatment when voice dysfunction arises. Singing teachers should be aware of the laryngeal variability that is present among asymptomatic singers and should encourage students to obtain baseline examinations.

NOTES

1. M. E. Elias, R. T. Sataloff, D. C. Rosen, R. J. Heuer, and J. R. Spiegel, “Normal Stroboscovideoscopy: Variability in Healthy Singers,” *Journal of Voice* 11, no. 1 (March 1997): 104–107.
2. D. S. Lundy, R. R. Casiano, P. A. Sullivan, et al., “Incidence of Abnormal Laryngeal Findings in Asymptomatic Singing Students,” *Otolaryngology Head Neck Surgery* 121, no. 1 (July 1999): 69–77.
3. Y. D. Heman-Ackah, C. M. Dean, and R. T. Sataloff, “Stroboscovideoscopy Findings in Singing Teachers,” *Journal of Voice* 16, no. 1 (March 2002): 81–86.
4. T. R. Reulbach, P. C. Belafsky, P. D. Blalock, et al., “Occult Laryngeal Pathology in a Community-Based Cohort,” *Otolaryngology Head Neck Surgery* 124, no. 4 (April 2001): 448–450.
5. R. T. Sataloff, M. J. Hawkshaw, J. L. Johnson, B. Ruel, A. Wilhelm, and D. Lurie, “Prevalence of Abnormal Laryngeal Findings in Healthy Singing Teachers,” *Journal of Voice* 26, no. 5 (September 2012): 577–583.

Mary J. Hawkshaw, B.S.N., R.N., CORLN is Research Associate Professor in the Department of Otolaryngology–Head and Neck Surgery at Drexel University College of Medicine. She has been associated with Dr. Robert Sataloff, Philadelphia Ear, Nose & Throat Associates and the American Institute for Voice & Ear Research (AIVER) since 1986. She has served as Secretary/Treasurer of AIVER since 1988 and was named Executive Director of AIVER in January 2000. She has served on the Board of Directors of the Voice Foundation since 1990. Ms. Hawkshaw graduated from Shadyside Hospital School of Nursing in Pittsburgh, Pennsylvania and received a Bachelor of Science degree in Nursing from Thomas Jefferson University in Philadelphia. In collaboration with Dr. Sataloff, she has coauthored more than 65 book chapters, 160 articles, and 7 textbooks. She is on the Editorial Boards of the *Journal of Voice* and *Ear, Nose and Throat Journal*. She has been an active member of the Society of Otorhinolaryngology and Head–Neck Nurses since 1998. She is recognized nationally and internationally for her extensive contributions to care of the professional voice.

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