

Abstracts

William J. Dawson, M.D.

Abaza MM, Sataloff RT: Sore throats in singers. J Singing 56(1):33–38, 1999.

Not all useful or informative articles are the product of prospective, randomized, double-blind investigations. Drs. Abaza and Sataloff provide a wealth of detail on identifying and diagnosing the various types of sore throat problems, as well as on diagnostic techniques; a limited but clinically helpful bibliography is a *lagniappe*. They stress the importance of singing teachers and their students' understanding the current concepts in diagnosis and treatment of this common problem, and being aware that not all sore throats are "minor." This information also will be useful to those physicians whose practice includes the occasional vocal musician, but who are not themselves otolaryngologists.

Bacterial and viral pharyngitis lead off the list of problems, but unusual infections that can produce pharyngitis also are covered. Especially important is the discussion of those less common diseases that occasionally can produce life-threatening respiratory pathology. Although uncommon in adults and seldom seen since the widespread use of antibiotics, they serve as a reminder that thorough and precise diagnosis must be made for each patient.

Treatment also is considered, but in a less detailed manner than diagnosis. However, the therapeutic principles presented are current and sound, with individual details such as the choice of antibiotic left to the treating physician. In many instances, some modalities of treatment are beyond the scope of the generalist.

Dr. Dawson is in the Department of Orthopaedic Surgery, Northwestern University Medical School, Chicago, Illinois.

Address correspondence to: William J. Dawson, M.D., 700 Woodmere Lane, Glenview, IL 60025-4469.

Turner-Stokes L, Reid K: Three-dimensional motion analysis of upper limb movement in the bowing arm of string-playing musicians. Clin Biomech 12: 426–433, 1999.

This is the first article of its kind to appear in the scientific literature, combining current methods of measuring gross limb motions with the biomechanics and technique of the string musician. The emphasis is on defining patterns of joint movement while bowing the violin and cello, and determining the potential of the measurement techniques for future clinical use in studying musicians' musculoskeletal problems.

Two cameras were used, with one subsequently moved from the musician's back to the front for measuring a different joint. Thus the data reported are not truly three-dimensional for a single joint, but nonetheless produce some significant findings. The system gave reproducible results on repeated testing and demonstrated clear differences between instruments, as well as stylistic differences among players of the same instrument. Shoulder range of motion (ROM) increased progressively toward the upper register of the cello, while decreasing on the violin [Ed: thus documenting the degree of an action whose nature is known intuitively]. Maximum shoulder elevation was significantly greater on the cello, while the range of elbow flexion was greater on the violin. The authors state that the greater shoulder ROM in playing the cello's upper register "may contribute to the greater prevalence of neck and shoulder symptoms among cellists." [This editor would like to see further data to support that hypothesis, either from these authors or other investigators; could not the same cause-and-effect hypothesis be considered for the lower register of the violin?]

Gannon LM, Bird HA: The quantification of joint laxity in dancers and gymnasts. J Sports Sci 17:743–750, 1999.

The authors measured joint range of motion in 65 subjects whose mean age was 21.4 years and whose skill levels ranged from novice to internationally-known professional. A group of non-specialized physical education students served as controls. Joints evaluated included shoulder, hip, lumbar spine, and ankle, while inherent joint laxity was assessed by the Beighton and coworkers' adaptation of the Carter and Wilkinson nine-point scale. Data from both right and left sides, measured with a hydrogoniometer, included active and passive ranges of joint motion. The investigators observed a graded increase in laxity from the controls, through the novice gymnasts, to dancers, and finally to international gymnasts. Women had greater degrees of laxity than men, confirming several previously published studies. Both dancers and gymnasts exhibited a greater passive range of motion in all measured joints when compared with age-matched members of the control group; this increased range was felt to be partly inherited and partly acquired. The authors state that the large observed differences between the active and passive ranges appeared to be due to a lack of strength in the periarticular muscles, thus rendering the joints unstable.

Stamatakis HC, Eliasson S, Bergström J: Periodontal bone height in professional musicians. Cross-section and longitudinal aspects. Acta Odontol Scand 57:116–120, 1999.

Playing wind instruments has been suggested as being a risk factor for periodontal disease. This study examined

periodontal bone height in professionals playing wind and non-wind instruments and also included a longitudinal study of changes in periodontal bone height over a ten-year period. The cross-sectional study group included 186 men and 59 women, aged 20–69 years; the longitudinal cohort numbered 92. Radiographic full mouth surveys were performed and periodontal bone height was measured using a computerized method; bone height was computed as a percentage of root length. There was no statistically significant difference in height between the wind instrumentalists (mean of 83.4%) and non-wind instrumentalists (83.6%). bone height quotients between the anterior and posterior teeth also showed no significant difference between the two groups of performers.

The longitudinal cohort had corresponding studies performed ten years earlier, as well as the current evaluation. Their overall loss of bone height in ten years was small, but only wind instrumentalists in the 50–69-year age group exhibited a statistically significant reduction over time. There was no statistically significant difference between musicians regarding the instrument played. The authors conclude from both longitudinal and cross-sectional evaluations that the playing of wind instruments is unlikely to affect periodontal bone height.

Koutedakis Y, Myszkewycz I, Soulas D, Papapostolou V, Sullivan I, Sharp NCC: The effects of rest and subsequent training on selected physiological parameters in professional female classical dancers. *Int J Sports Med* 20:379–383, 1999.

This study assessed the effects of a six-week summer break and of dance preparations at the beginning of a new season following the break, on selected physical parameters in 17 ballerinas. they were assessed just before and after the break, during which minimal physical work was reported. Eight dancers also were evaluated two to three months into the season.

The holiday break was followed by a 15% overall increase in three flexibility tests, a 14% increase in peak anaerobic

power, a 16% increase in leg strength (bilateral flexion + bilateral extension), and a 10% increase in VO₂ max. The data gathered two to three months into the new season revealed further significant increases by 24% in leg strength and 17% in VO₂ max, compared with the pre-holiday data. Despite the lack of a control group, the results fit with the hypothesis of a degree of “burnout” at season’s end, which negatively affected the dancers’ mechanisms of fitness and conditioning. A six-week summer break can act to restore these mechanisms. Positive adaptations to two to three months of dancing in the new season appeared to confirm recovery from the “burnout” or overtraining phenomenon. The authors feel that more research is required on the effects of demanding dance schedules on fitness and conditioning, and how such schedules might have adverse effects on dance performance and dancers’ careers.

Lundy DS, Casiano RR, Sullivan PA, Roy S, Xue JW, Evans J: Incidence of abnormal laryngeal findings in asymptomatic singing students. *Otolaryngol Head Neck Surg* 121:69–77, 1999.

Abnormalities in the mucosal lining of the vocal folds may interfere with normal patterns of vibration and result in vocal limitations, especially for those singers with high demands on their voices. The authors studied 65 singing students at the University of Miami by means of a detailed three-page questionnaire and a videostroboscopic examination, with satisfactory data available for 57 subjects. Of special importance were the history questions dealing with the subjects’ use of drying substances, any history of reflux symptoms, and the nature/extent of voice usage. The videos were rated by three experienced clinicians, and results were correlated with demographic factors, the students’ medical histories, and their singing histories.

Five female students had early signs of benign vocal fold lesions (four with bilateral nodules and one with an intrachordal cyst). All five had considerable risk factors for developing vocal difficulties. Incomplete glottal closure was seen in 84%, and was more common in

women. Seventeen students had laryngeal edema. Possibly the most important abnormal finding was posterior erythema, commonly seen in reflux laryngitis; 45 of the 57 subjects (79%) exhibited this abnormality, possibly suggesting gastric acid reflux. Significant risk factors were found in the entire group, but they could not be differentiated into patterns that might precipitate specific laryngeal conditions or vocal symptoms.

Weikert M, Schlömicher-Their J: Laryngeal movements in saxophone playing: Video-endoscopic investigations with saxophone players. *J Voice* 13: 265–273, 1999.

This pilot study documented motions of the larynx, hypopharynx, and diaphragm in two professional saxophonists by means of fiberoptic videoendoscopy and fluoroscopy. Endoscopic measurements were made during singing and alto saxophone playing (scales, intervals, and staccato and legato passages throughout the instrument’s range). The fluoroscopy recorded their deep diaphragmatic breathing. The larynx played an essential role in controlling, supporting, and regulating the performers’ air stream, a finding also noted by other investigators. It remained steady during playing, 2 cm caudal to its resting position. In this position of relative muscular constriction, the air current directed toward the saxophone mouthpiece and reed was more concentrated and directional. The vocal folds stayed mostly in an intermediate position, while the epiglottis was mostly upright. Velopharyngeal closure was sufficient, even under conditions of flexible transnasal laryngoscopy with a 3-mm diameter scope. Fluoroscopy revealed the previously-described interaction between the diaphragm and glottis, with the latter structure helping to focus the air stream, a function different than that used in singing. Thus, in saxophone playing, the breathing processes include both supraglottal tightening and compensatory opening of the mouth and pharynx.