

The Essentials of Performing Arts Medicine



AN OVERVIEW: THE SPECIAL MEDICAL NEEDS OF MUSICIANS

Lucinda A. Halstead, MD

President-Elect

Performing Arts Medicine Association(PAMA)

Associate Professor

Department of Otolaryngology- Head & Neck Surgery

Medical Director

Evelyn Trammell Institute for Voice and Swallowing

Medical University of South Carolina

Charleston, SC

Ralph A. Manchester, MD

President

Performing Arts Medicine Association (PAMA)

Professor

Department of Medicine, General Medicine

Vice Provost & Director

Department of University Health Service

University of Rochester

Rochester, NY



Presenter Disclosure Information

- Lucinda Halstead, MD
- Nothing to Disclose
- Ralph Manchester, MD
- Nothing to Disclose

SIMILARITIES BETWEEN ARTISTS AND ATHLETES!

- Their body IS their instrument!
- Specialized examinations required to diagnose/ treat problems
- Need Physicians/SLPs/PTs/OCs with specialized knowledge and training



SIMILARITIES BETWEEN ARTISTS AND ATHLETES!

- Practice or play every day
- Play or perform through *pain*
- Perform or play at all times of day or night
- Compete or perform in challenging environments
- Little “off season”
- *Pressure to succeed*
- Real risk of career-threatening injury – even as children!

Courtesy of:

Randall W. Dick, MS, FACSM, Chair, Athletes and the Arts

PERFORMERS UNAWARE OF COMMON PRACTICE PITFALLS LEADING TO PERFORMANCE INJURY



UNIQUE NEEDS OF ALL PERFORMER/PATIENTS

- Not a 15-minute appointment
 - Specialized exam - often requires specialized equipment
 - Discuss treatment of presenting problem
 - Review practice routines and pre-performance warm up/cool down
 - Lifestyle and career challenges
 - Review overall health
 - Emotional support
 - Hearing assessment/noise exposure

UNIQUE NEEDS OF SINGERS

- The LARYNX cannot be visualized without special instrumentation
- Subtle but potentially career ending pathology could be present

VOCAL FOLD HEMHORRHAGE



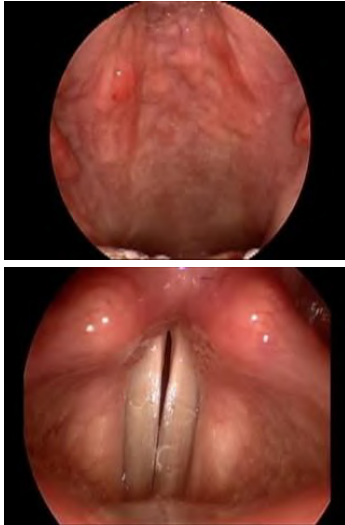
PHYSICAL EXAMINATION OF INTRINSIC LARYNX: HIGH RESOLUTION LARYNGEAL VIDEO & STROBOSCOPY

- **High resolution laryngeal video**
 - Flexible fiberoptic laryngoscopy
 - Allows manipulation of vocal tract in singing & speaking
 - Rigid rod lens laryngoscopy
 - More magnified image of vocal folds
 - Limited functional evaluation
- **Stroboscopy**
 - Visualizes the vocal wave (body/cover interaction)
 - Detects stiffness, scar, subtle neurological weakness
 - Allows lesions on the inferior surface of the vocal folds to be seen

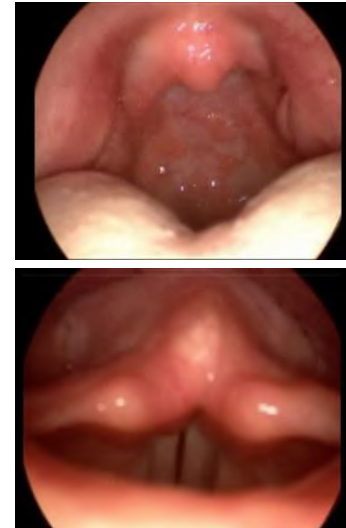


VOCAL STYLES: CLASSICAL AND BELT/CCM

“Classical”



“Belt/CCM”



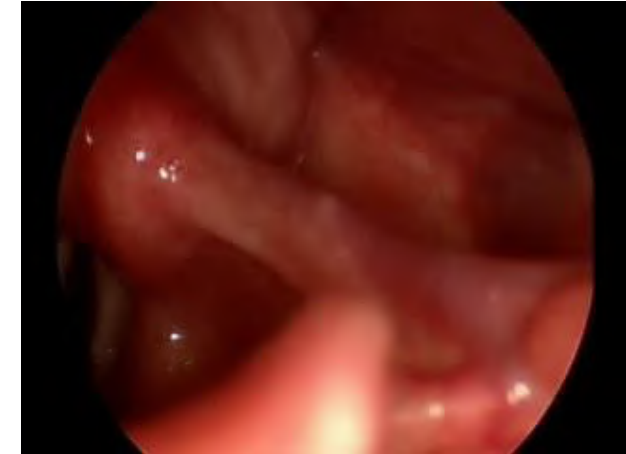
THE MENSES

- Swelling of the vocal folds (and rest of body)
- **Flame hemorrhages** (endometrial sloughing)
- Loss of fine control, especially in the passaggio
- Loss of top notes
- **Menstrual cramps:** Tylenol Ultra (500mg acetaminophen & 65mg caffeine)
 - Avoids increasing risk of hemorrhage with NSAIDS but has caffeine for cramping
 - Midol complete & Midol caffeine free contain acetaminophen but have other additives
 - Midol long acting – contains NSAID



VOCAL ABUSE - Asthenia

- Presentation:
 - Aphonia, breathiness, strain or pain in the vocal range
 - Associated with overuse and technical errors
- Evaluation/treatment
 - Laryngeal stroboscopy pre& post tx
 - Minimum of 2 exams
 - CPT 31579
 - PB* fee \$1,239.00
 - HB* fee \$1,389.00

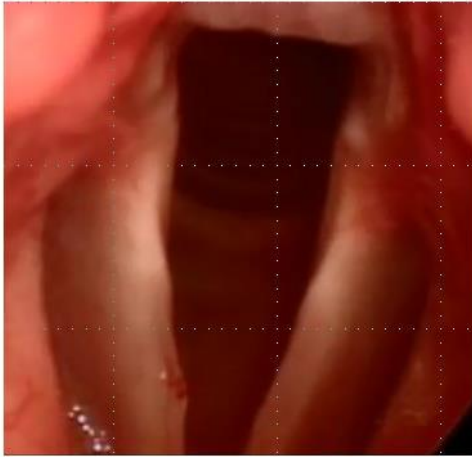


Acute Injury



48 hours absolute voice rest

THE “BUMP” GALLERY



VASCULAR ECTASIA / VARIX



SOFT NODULES



BROAD-BASED POLYPS

- Increasing roughness and range restriction
- Number of visits and stroboscopy exams increases
- Need for Speech Therapy specific to vocalists
- Possible need for surgery – in office or in Operating Room

THE “BUMP” GALLERY

- Presentation:
 - Aphonic or thin weak sound throughout the entire range
- Treatment:
 - Requires surgery & singing habilitation
 - Multiple laryngeal stroboscopies
 - In office surgery:

• CPT 31572	PB fee \$1,873.00	HB fee \$4,699.00
• CPT 31573	PB fee \$1,003.00	HB fee \$2,454.00
 - In OR:

• CPT 31451	PB fee \$2,053.00
• CPT 31545	PB fee \$2,410.00



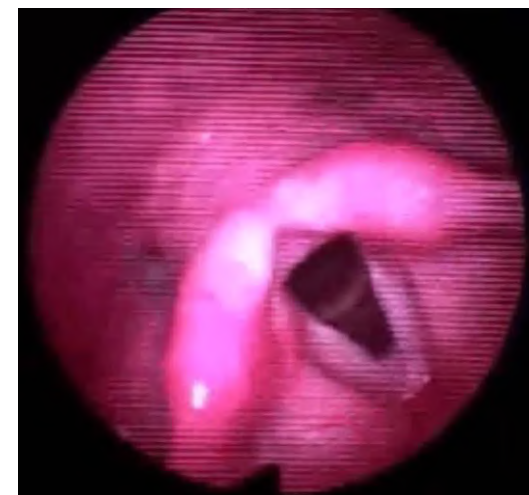
CYST



FIBROUS & VASCULAR POLYPS

WIND AND REED INSTRUMENTALISTS

- Palatal, tongue and embouchure dystonia or weakness
- Short palate causing air leak during play
- Laryngeal pain and hoarseness with laryngeal vibrato



CAN YOU SING, PLAY OR TEACH IT ?

IF YOU CAN'T HEAR IT?



J Voice. 2017 May;31(3):379.e21-379.e32.

SOUND LEVEL ENVIRONMENT OF MUSICIANS

dB	DIRECT SOUNDS	OSHA EXPOSURE TIME	NIOSH EXPOSURE TIME
140	Jet take-off, Gun shot	Less than 7 minutes	Less than 7 seconds
130	Jack hammer	Less than 7 minutes	Less than 7 seconds
120	Threshold of pain	Less than 7 minutes	Less than 7 seconds
115	Rock concert	15 Minutes	28 seconds
110	Dance club	30 Minutes	~1 minute 30 seconds
105	Voice shouting	1 Hour	~5 minutes
100	Factory	2 Hours	15 minutes
95	Subway	4 Hours	~45 minutes
90	Heavy traffic	8 Hours	~3 hours
80	Busy street		
70	Restaurant		
60	Average conversation		
50	Average suburban home		
40	Quiet auditorium		
30	Quiet whisper		
20	Extremely quiet recording studio		
10	Anechoic chamber		
0	Threshold of hearing		

Choral 86 to 110 dB

Solo singer > 110 dB

Orchestra 80-135 dB

NATS 2018 guest artist concert:
Voices of opera stars Stephanie
Blythe & Christine Brewer produced
sound levels of 85db (no mike)
at seats 2/3 back from stage

INSTRUMENTAL MUSICIANS' HEALTH PROBLEMS

Neuromusculoskeletal problems

Hearing problems

Mental health problems

NEUROMUSCULOSKELETAL INJURIES

- Muscle/tendon upper extremity pain syndromes
 - (AKA performance-related musculoskeletal disorder, PRMD)
 - Muscle overuse, tendinosis, epicondylitis
- Peripheral neuropathy
 - median nerve (carpal tunnel syndrome)
 - others
- Focal dystonia
 - hand
 - embouchure

CLINICAL EVALUATION OF INSTRUMENTAL MUSICIANS

- Taking a careful history of the problem is essential – this typically requires more than a 15 min appointment.
- Doing a focused physical exam can help define the extent of the problem.
- Observing the musician play the instrument is key.
- Sometimes additional testing is needed (EMG, MRI, etc).
- Referral to specialists (Orthopedics, Neurology, ENT) may be necessary depending on the problem.

INJURY RATES FOR PROFESSIONAL PERFORMING ARTISTS

- 2010 Bureau of Labor Statistics report - *incidence*
 - “Performing arts, spectator sports, and related industries”: 6.7 injuries/100 workers/year
 - “Hospitals”: 7.0
 - “Nursing and residential care facilities”: 8.3
- Published data on university-level music student PRMD’s
 - 8.5 injuries/100 performance majors/year

INJURY PREVALENCE IN MUSICIANS

Age	Number of studies	Cumulative Prevalence	Point Prevalence
Pre-adolescent	1	50%	No data
Adolescent	2	75%	No data
University	3/1	80%	10%
Adult	1/2	90%	80%

RISK FACTORS FOR PRMD'S IN MUSICIANS

- Instrument
 - String and keyboard > woodwind and brass
- Gender
 - Female > male
- Rapid increase in practice time
- Total playing time?

TREATMENT OF PRMD'S

- In general, try to identify what caused the injury and work to correct it. *Musician may need to take a lesson.*
- Partial rest of the injured body part
- May use OTC NSAID's for a few days
- Ice and heat
- Referral to physical/occupational therapy - *insurance*
- Referral to specialists as needed - *insurance*
- Careful return to practice/performance

PREVENTION OF PRMD'S

- Gradual increase in practice time
- Taking breaks every 30 to 60 min while practicing
- Good technique
- Appropriate repertoire
- Instrument modifications – *costs money*
- Exercise? *Swimming is often recommended, but access to a pool usually costs money.*

INSTRUMENT MODIFICATIONS

- Piano – 7/8 or 15/16 keyboard
- Bowed string instruments – body cut-out
- Guitar – body cut-outs, string material and tension
- Single and double reed woodwinds – Neck strap, seat strap, support post
- Flute – Angle headed or recurved head; key extenders

ERGONOMIC GUITARS



SUMMARY

- Most performers require discipline specific exams
- Need costly tests frequently to assess problems and monitor recovery
 - Laryngeal stroboscopy, MRI, Ultrasound, CT scans
 - Voice therapy, PT, OT
- Limited access due to insurance issues
- Undertreatment due to monetary issues

THANK YOU!

LUCINDA HALSTEAD, MD

halstead@musculina.edu

RALPH MANCHESTER, MD

RManchester@UHS.ROCHESTER.EDU