



Your Voice

Newsletter of the Institute of Laryngology and Voice Restoration

MISSION

The Institute of Laryngology and Voice Restoration (ILVR) is a non-profit organization seeking to advance laryngology and voice restoration through innovative basic and translational research, education, and outreach programs.

ILVR is an independent 501(c)(3) organization that works in cooperation with Massachusetts General Hospital, Harvard University, Massachusetts Institute of Technology, and other institutions.

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INSIDE

Updates on clinical programs, activities, & research initiatives

New laser technologies advancing the treatment of cancer and other laryngeal diseases

The Voice Restoration Research Program: Seeking a cure for vocal cord scarring

New Voice Assessment Research Developments

Harvard Academic Programs and Promotions in Laryngeal Surgery

Institute of Laryngology and Voice Restoration

Supporting Clinical Programs, Education and Research in Boston and Around the World

The Institute of Laryngology and Voice Restoration (ILVR) is providing support for a wide variety of unique clinical, research and educational initiatives. This newsletter reviews recent exciting activities, programs and events.

CLINICAL PROGRAMS

MGH Voice Center

Since the ILVR and the Eugene B. Casey Foundation provided major support to the Department of Surgery at the Massachusetts

General Hospital (MGH) to build the Voice Center in July 2004, it is now one of the busiest facilities of its kind in the world. Although the MGH and Harvard originally came together in the late 19th century to form one of the first and most dominant programs in Laryngology in America (~1870), it disbanded soon after World War I. Remarkably, in 3 short years, Drs. Zeitels (Director), Hillman (Research Director), and Warshaw (MGH Surgeon in Chief) have succeeded in re-establishing the international

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Julie Andrews: Honorary Chairwoman of the ILVR Board of Directors

Dame Julie Andrews visited the MGH Voice Center to spend time with the dedicated researchers of the Voice Restoration Research Program on December 1, 2007 (see page 7).

That night, close friends and board members of the ILVR, along with Dr. and Mrs. Andrew Warshaw, Dr. and Mrs. Peter Slavin (President MGH), and Ann Prestipino

(Vice President MGH) joined Ms. Andrews for an intimate dinner at the MGH Voice Center.

The ILVR honored Ms. Andrews for her service and dedication to assisting the MGH researchers in the mission to solve vocal-fold scarring and she will serve as the ILVR Honorary Chairwoman. □



From left: Prestipino, Hillman, Zeitels, Andrews, Warshaw, and Slavin.



New Signs with logos designed by Robert Cipriani

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prominence of MGH in Laryngology. From throughout the United States and from every continent, patients are seeking the unique care provided by the team at the MGH.

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The MGH Center for Laryngeal Surgery and Voice Rehabilitation (AKA: MGH Voice Center), which occupies approximately 12,000 square feet on the top floor of One Bowdoin Square in Boston, underwent substantial renovation this past Autumn. The state-of-the-art equipment was further enhanced by introducing the first ultra-high-speed color camera (*see page 4*) for assessing vocal-cord vibration. New signs were placed featuring the ILVR and MGH Voice Center

logos designed by artist, patient, and supporter, Robert Cipriani.

The MGH Voice Center continues to work on several National Institutes of Health grants and collaborates on research projects with Massachusetts Institute of Technology (MIT), the MGH Wellman Laboratories of photomedicine, Boston University School of Medicine, and University of South Carolina in several areas including: voice restoration; vocal cord scarring; vocal rejuvenation; novel laser treatment paradigms for benign and malignant disease; development of a portable voice monitor with biofeedback for both diagnosis and treatment of voice disorders; and development of a voice neural prosthesis for those who have lost their voice box (larynx).

EDUCATION

American Broncho-Esophagological Association

In 2006, the ILVR endowed yearly lectureships and/or academic panels at the annual meeting of the *American Broncho-Esophagological Association (ABEA)*. In May 2007, the first ILVR educational forum occurred at the annual ABEA meeting in

San Diego. The ILVR panel was entitled “Nightmares in the Pediatric Airway,” which was moderated by Dr. Peter Koltai, the Chief of Pediatric Otolaryngology at Stanford University School of Medicine. It was a well-attended event and quite valuable for bringing to light the latest advancements in complex pediatric laryngeal airway management. The ABEA is a unique surgical society that was started ~90 years ago to advance the study and treatment of diseases of the upper airway and food passages.

American Speech-Language-Hearing Association

The ILVR provided financial support for the Special Interest Division (SID 3) for Voice and Voice Disorders of the American Speech-Language-Hearing Association (ASHA) to hold an Open House at the MGH Voice Center during ASHA’s Annual Convention held this past November in Boston. The purpose of the Open House was to provide the opportunity for individuals who are considering a PhD program with a voice research emphasis to meet potential mentors from leading institutions around the country (*see page 10*).

Harvard Medical School Continuing Education Courses

The ILVR continues to collaborate with Harvard Medical School (HMS) and the MGH to present Continuing Medical Education courses. The most recent course “Laryngeal Framework Voice Surgery” was held on November 2, 2007, at the MGH Voice Center. This unique and specialized course brought attendees from throughout the US as well as 7 countries. This followed the 2006 course, “Office-Based Laryngeal Surgery,” which was the first of its kind presenting the pioneering work of the MGH group in laser surgery. A new course (Larynx Surgery Innovations) scheduled for November 7th, 2008, will provide a comprehensive update on laryngeal cancer and related diseases (*see page 6*).

Harvard Medical School Academic Promotion

Dr. Steven Zeitels was recently promoted to full Professor of Surgery at Harvard Medical School, which is joined to his endowed Eugene B. Casey Chair of Laryngeal Surgery. This important promotion, along with the endowed chair, ensures that Harvard Medical School and the Massachusetts General Hospital will remain committed in perpetuity to the mission of advancing laryngeal surgery and the study of voice disorders.

RESEARCH

Ongoing ILVR support has been instrumental in enabling Dr. Steven Zeitels (MGH Voice Center Director) and Dr. Robert Hillman (MGH Voice Center Co-Director and Research Director) to assemble a multidisciplinary group of investigators to focus on research to improve the prevention, diagnosis and treatment of larynx and voice disorders. This outstanding team currently includes Dr. James Burns, Assistant Professor of Surgery at the MGH and Harvard, as well as three full-time doctoral-level research staff members. James Kobler, Ph.D., James Heaton, Ph.D., and Hyounghshin Park, Ph.D. continue as senior members of the Center’s research staff closely mentoring doctoral and postdoctoral researchers. These scientists have special expertise in vocal anatomy and physiology, neuroscience, tissue biology, instrumentation, and the latest tissue engineering approaches.

BOSTON UNIVERSITY SCHOOL OF MEDICINE

Zeitels receives Distinguished Alumnus Award



Dr. Steven Zeitels

Dr. Steven Zeitels was honored at the 25th Reunion of his Boston University School of Medicine graduating class (1982) with the Distinguished Alumnus Award for his outstanding career in Otolaryngology – Head and Neck Surgery. Dr. Zeitels was a member of the first class of Boston University Trustee Scholars and attended BU’s six-year medical program. He completed a BU – Tufts University combined Otolaryngology – Head and Neck Surgery Program and a Head & Neck Surgical Oncology Fellowship at BU and the Boston Veterans Affairs Medical Center.

He has been a productive surgical innovator, designing more than 20 new laryngeal and pharyngeal procedures as well as two patented laryngoscopes. He

has contributed more than 150 scientific articles, book chapters, and videotapes in these areas as well as presenting over 300 papers and lectures. His single-author *Atlas of Phonomicrosurgery* is considered by many surgeons to be the definitive text in microsurgery of the larynx.

Dr. Zeitels has been the visiting professor at over 20 departments, universities, and hospitals, receiving more than 50 awards and honored lectureships for his achievements including the Casselberry Award from the American Laryngological Association. He works locally, nationally and internationally to advance laryngology and head and neck surgery. His work has been discussed extensively in print media, radio, and television both nationally and internationally [i.e. Good Morning America, Today Show, Wall Street Journal, NY Times, London Sunday Times, Boston Globe, NPR, BBC]

Currently, Dr. Zeitels is the Eugene B. Casey Professor of Laryngeal Surgery at Harvard Medical School, and the Director of the Center for Laryngeal Surgery and Voice Rehabilitation at the Massachusetts General Hospital. He recently re-established a Harvard Laryngeal Surgery service at Massachusetts General Hospital, which had not been present since the 1920s. On behalf of the Alumni Association, Steven Zeitels, M.D. ‘82 was awarded the 2007 BUSM Distinguished Alumnus Award. □

A major portion of ILVR funding goes toward supporting cutting-edge research projects in laryngology and voice that require collaboration among surgeons, clinicians, and scientists from several institutions with a variety of specialties (e.g., laryngology, speech pathology, engineering (chemical, biomechanical, tissue), biology,

biochemistry, neuroscience, imaging, etc.). As research leaders in laryngeal surgery and voice disorders, the MGH team published more than a dozen scientific papers and chapters in 2007 (*see page 11*) and made over 40 scientific presentations domestically and abroad. □

Voice Restoration Research Program



Dr. Hillman (at right) and Daryush Mehta (MIT doctoral student) with the Ultra high-speed color camera system for imaging vocal cord vibration. The system, which is set up in the sound-treated room in the Voice Research Laboratory at the MGH Voice Center, currently enables the recording of up to 10,000 color images per second simultaneously with the acoustic signal (microphone), vocal cord tissue contact signal (electroglottography) and neck skin vibration signal (accelerometer) during laryngeal endoscopy.

The ILVR continued to fund the comprehensive multi-institutional Voice Restoration Program that is aimed at developing new methods for diagnosing and treating vocal cord scarring (loss of pliable vocal cord tissue), the major cause of common voice disorders. Julie Andrews, spokesperson for this project (see page 7), visited the team in December 2007 to see first-hand the exciting progress that is being made. The project is aimed at developing new methods for imaging and testing the biomechanical properties of vocal cords, innovative surgical techniques and instruments, and novel bioimplants designed to restore the pliability of damaged vocal cords.

There are approximately 15 MDs, PhDs, and doctoral students working on



MGH Voice Center Research Team with Julie Andrews (center) during her December 2007 visit.

this project with a current annual budget of approximately 2.2 million dollars. In addition to supporting the research team at the MGH Voice Center, funding is also provided for associated collaborative work in molecular biology and MRI imaging at Boston University under the direction of Dr. Victoria Herrera, and work at MIT in biomaterial engineering under the direction of Dr. Robert Langer. In July 2007, Dr. Langer was awarded the National Medal of Science from President Bush for “his revolutionary discoveries in the areas of polymeric controlled release systems and tissue engineering and synthesis of new materials that have led to new medical treatments that have profoundly affected the well being of mankind.”



Dr. Robert Langer

The project leader is Dr. Steven Zeitels. The MGH research team is comprised of five surgeons, Drs. Burns, Guerra-Lopez, Kumai, Feinberg, and Lahav, and six scientists, Drs. Hillman, Park, Kobler, Heaton, Ottensmeyer, and Karajanagi, who are assisted by several research assistants, including full-time laboratory technicians Kathryn Wolak and Jon Aanestad.

The ILVR has also provided seed funding to Dr. Dimitar Deliyski from the University of South Carolina over the past two years to support his work with MGH’s Dr. Hillman to develop ultra high-speed imaging of vocal cord vibration.

Work accomplished with ILVR funding contributed to the basis for obtaining a major research grant from the National Institutes of Health (NIH) to continue the development of this exciting new technology over a five year period. This NIH-funded project will primarily support the continued collaboration between the MGH Voice Center and the University of South Carolina. □

Steven Tyler from Aerosmith and Dr. Steven Zeitels are featured on the Today Show with Matt Lauer



After being interviewed by Matt Lauer on the Today Show on October 19, 2007, Steven Tyler and Dr. Steven Zeitels were featured on Sunday, October 21, on the National Geographic Channel (NGC), which presented the “Incredible Human Machine.” This two-hour documentary is a journey through an ordinary and extraordinary day-in-the-life of the human machine. With stunning high-definition footage, radical scientific advances and powerful firsthand accounts, Incredible Human Machine plunged deep into the routine marvels of the human body.

Striking feats of medical advancements are demonstrated, including Dr. Zeitels’ digitally-recorded laser surgery on Steven Tyler and real-time measurement of the rocker’s vocal cords during a live concert. Aerosmith’s lead singer Steven Tyler opens wide and gives us an intimate endoscopic look at how his famous pair of vocal cords holds up to the trauma of singing his signature song, “Dream On.”

After vocal damage forced him to cancel part of the band’s tour, a pioneering laser method of “zapping” the damaged blood vessels with a pulsed KTP laser allowed Tyler to start singing again. The real-time monitoring of Tyler’s voice during the live concert was accomplished with new technology developed by a research team led by Dr. Hillman.

These measurements reflected the tremendous strain that Tyler places on his vocal system during a performance, often exceeding 110 decibels in loudness, with his vocal cords colliding more than 750,000 times during the 90 minute concert. □



MGH Voice Center team attaching voice monitoring equipment to Steven Tyler backstage prior to the live concert. Backstage at National Geographic Channel’s “Incredible Human Machine”

MGH Team is Featured on “Healthline” of Retirement Living Television



(From left): Drs. James Heaton, Steven Zeitels, Kevin Soden.

Drs. James Heaton and Steven Zeitels were featured guests on the television show *Healthline* (*see www.rl.tv*) hosted by Dr. Kevin Soden August 29, 2007. They discussed a range of topics on voice disorders and state-of-the-art surgical treatment. Special emphasis was provided on office-based laryngeal laser surgery, which was created by the MGH team and the novel pulsed-KTP laser treatment for precancerous dysplasia and papillomatosis. This thirty minute program also featured noted NPR talk show host, Diane Rehm. *Healthline* focuses on health issues of particular concern to seniors and airs to a potential audience of 38 million subscribers to the Retirement Living channel. □

Harvard Continuing Medical Education

ILVR sponsors one-of-a-kind courses to bring the latest advances in treatment and technology to medical professionals from around the world.



Dr. James Burns (right) instructs surgeons attending the 2007 Harvard Voice Surgery Course.

Laryngeal Framework Voice Surgery: 2007

In 2007, the ILVR, Harvard Medical School and the MGH Department of Surgery cosponsored a laryngeal reconstruction course. “Laryngeal Framework Voice Surgery” was co-directed by Dr. James Burns and Dr. Zeitels and updated attendees on the specialized techniques designed by the MGH researchers for restoring the voice in patients who have sustained vocal cord paralysis or cancer. The attendees, who traveled from around the United States and abroad, rated the course so positively that Drs. Burns and Zeitels received special recognition from Harvard Medical School.

Larynx Surgery Innovations: Cancer, Dysplasia, & Papillomatosis: 2008

In November 2008, the ILVR, Harvard Medical School, and the MGH Department of Surgery will cosponsor a unique course featuring state-of-the-art techniques in the surgical management of vocal cancer and related diseases. The ILVR and the MGH team are pleased that Drs. Bert O’Malley (Gabriel Tucker Professor and Chairman Department of Otorhinolaryngology: Head and Neck Surgery at the University of Pennsylvania Health System) and Marshal Strome (Professor, Co-Director of Head and Neck Oncology and Head and Neck Transplant Center at St. Luke’s Roosevelt Medical Center) will serve as the honored guests of the meeting. Both surgeons are world-renown academic leaders in Otolaryngology – Head and Neck Surgery. □



ILVR Board Members (from left): Gerald McAvoy, Eric Stromquist, Barry Merkin, Julie Andrews, Scott Solombrino, and John Ward.

Photos courtesy of Ron Pownall



ILVR Recognizes Julie Andrews for Her Commitment to Voice Research

On December 1st, close friends of the ILVR and administration of the Massachusetts General Hospital came together for an intimate evening to honor Dame Julie Andrews for her commitment to voice research and the MGH team. Ms. Andrews, who lost her singing voice after a failed surgery in New York 10 years ago, was subsequently improved through Dr. Zeitels' efforts, although her voice was not fully restored. Approximately 6 years ago, Drs. Zeitels, Hillman, Langer, and Kobler joined Ms. Andrews to raise awareness of voice disorders and to formally announce the initiation of this unique scientific collaboration (*see page 4*). Ms. Andrews has been a staunch supporter of the MGH team in their determination to solve the problem of vocal fold scarring, today's most common reason for permanent voice loss.

During the evening, heartfelt testimonials were given by Ms. Andrews as well as directors of the ILVR board about their struggles with their voice problems. Dr. Warshaw (MGH Chief of Surgery) and Dr. Peter Slavin (MGH President) expressed their appreciation to the ILVR for working with them to create the MGH Voice Center now one of the premier facilities of its kind in the world. □



ILVR Supports New Clinical and Research Fellows at MGH Voice Center



*Laryngeal Surgery Fellows (from left):
Drs. Yonatan Lahav, Steven Feinberg, Gerardo Lopez -Guerra, Yoshihiko Kumai.*

The ILVR is continuing its ongoing financial support for Clinical and Research Fellowships at the MGH Voice Center. The Clinical Fellowships provide one full-year of intensive state-of-the-art training in laryngology, while Research Fellowships provide post-doctoral (typically MDs who have completed residency training in otolaryngology) support for individuals to work full-time on research related to laryngology for variable time periods (usually 1 or 2 years). These Fellowships serve a critical role in the shared mission of the ILVR and MGH Voice Center, to improve clinical practice, and to conduct research that will lead to the development of better methods for diagnosing and treating voice disorders. This past summer saw the arrival of two new ILVR-supported Clinical Fellows, and one new Research Fellow.

Dr. Gerardo Lopez-Guerra from Barcelona, Spain advanced into his second year as a valued member of the MGH Voice Center research team. The new

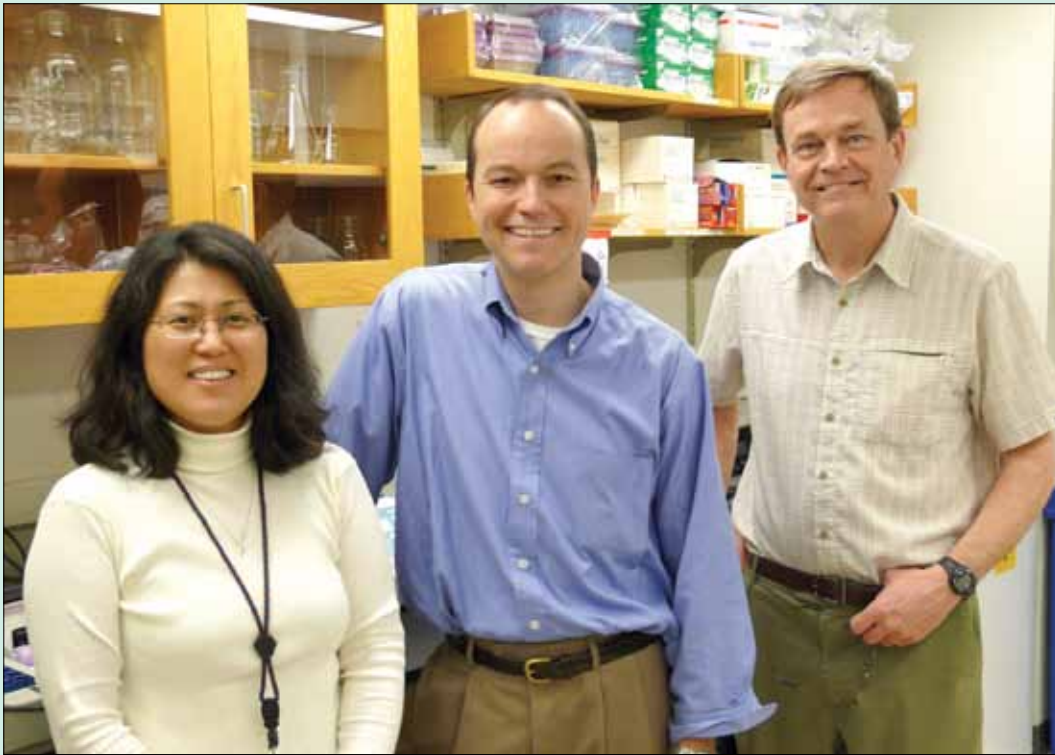
Clinical Laryngeal Surgery Fellows are Drs. Steven Feinberg and Yonatan Lahav. Dr. Feinberg, a native of Illinois, received a B.A. in Biochemistry (with Honors) from the University of Wisconsin-Madison, an MD from the University of Illinois-Chicago College of Medicine, and completed residency training in Otolaryngology at the University of California -Irvine. During his residency program Dr. Feinberg received the Triologic Society Resident Research Award, an Academic Achievement Award from his residency program, and an AAOHNS Foundation Resident Travel Award.

Dr. Lahav is a native of Israel and plans to return to his home country following completion of his Clinical Fellowship, and one additional year as a Research Fellow. Dr. Lahav received his pre-medical and medical training at the Hebrew University and Hadassah School of Medicine in Jerusalem where he has also served as a Clinical Instructor since 2003. Since 2006 he also held the position of Senior Physician

and Surgeon, Specialist in Otolaryngology-Head and Neck Surgery at the Kaplan Medical Center. Dr. Lahav's awards include Outstanding Resident of the Year, Best Research Study of the Year from the Israeli Society of Otolaryngology- Head and Neck Surgery, and a nomination for Outstanding Clinical Teacher.

The new Research Fellow is Dr. Yoshihiko Kumai from Japan who plans to spend two years at the MGH Voice Center conducting basic research on vocal cord scarring as a basis for developing methods to inhibit and even reverse the scarring process. He holds both an MD and a PhD (Medical Science) from Kumamoto University, where he also completed his Residency in Otolaryngology-Head and Neck Surgery and served on the Medical Staff. Dr. Kumai already has substantial research experience with over a dozen scientific publications. A portion of Dr. Kumai's funding is provided by the Pentax Corporation. □

New Laryngeal Surgery Research Laboratory Opens at MGH with ILVR Support



Senior research staff (from left): Drs. Hyounghsin Park, James Heaton, and James Kobler in the new MGH Laryngeal Surgery Laboratory

The ILVR provided the additional funding that was needed to complete the new Laryngeal Surgery Research Laboratory which recently opened in the Thier Research Building on the MGH main campus. The new laboratory, which occupies approximately 1,200 square feet, is a state-of-the-art facility that includes offices for research staff, and rooms and resources for tissue engineering, cell culturing, histology, surgical instrument development, tissue imaging, and *in vivo* and *ex vivo* testing of laryngeal procedures.

The opening of this new laboratory has made it possible to consolidate and make more efficient much of the basic sciences work that the MGH Voice Center research team has been conducting over the past several years using temporary space in several laboratories around the Boston area.

With the addition of the new basic sciences laboratory on the MGH main campus, the MGH Voice Center now has three laboratories devoted to laryngology and voice research, including the Clinical Voice Laboratory (clinical voice assessment of patients) and Human Voice Research Laboratory (voice and speech data acquisition in human subjects) at the Center's One Bowdoin Square location. □

ILVR Supports American Speech-Language-Hearing Association

Efforts to Match PhD Students with Mentors to do Voice Research

The ILVR provided financial support for the Special Interest Division (SID 3) for Voice and Voice Disorders of the American Speech-Language-Hearing Association (ASHA) to hold an Open House at the MGH Voice Center during ASHA's Annual Convention held this past November in Boston. This event was coordinated by Dr. Robert Hillman, Co-Director and Research Director of the MGH Voice Center, and a member of the SID 3 Steering Committee.

Hosting the event were members of the Speech Language Pathology staff at the MGH Voice Center, Tara Stadelman-Cohen, Marie Jette, and Maia Braden. The purpose of the Open House was to provide the opportunity for individuals who are considering a PhD program with a voice research emphasis



*Speech Language Pathology staff
at the MGH Voice Center
(from left): Tara Stadelman-Cohen,
Maia Braden, and Marie Jette.*

to meet potential mentors from leading institutions around the country.

The Open House also provided the opportunity to see demonstrations of the

latest technologies being developed at the MGH Voice Center including ultra high-speed laryngeal imaging, outpatient laryngeal laser surgery, voice ambulatory monitoring and biofeedback, size calibration of endoscopic images, and voice neural prosthetics.

Doctoral students already affiliated with the MGH Voice Center through the Speech and Hearing Bioscience and Technology Program in the Harvard-MIT Division of Health Sciences and Technology, Asa Masaki, Cara Stepp, Daryush Mehta, Yoko Saikachi, Rebecca Woodbury, and Miriam Makhoul, participated in the Open House by giving demonstrations and presentation of their research projects. The event was universally deemed a success with over 150 attendees. □



Restoring the Voice of College Basketball

Dick Vitale, who was recently accepted into the College Basketball Hall of Fame for being its premier broadcaster, underwent vocal cord surgery by Dr. Zeitels for precancerous dysplasia last December. Mr. Vitale was brought to Dr. Zeitels by his Otolaryngologist in Florida, Dr. Daniel Deems, because of the ground-breaking advancements by the MGH team in restoring voices, especially in those patients with precancerous and malignant vocal cord lesions. Mr. Vitale's treatment has been very successful and recently returned to announce the Duke - North Carolina game.

Later that week Drs. Hillman and Zeitels were hosted by Mr. Vitale and ESPN in Louisville for their contest with Georgetown. At that game, Vitale's voice was monitored with an invention developed by Dr. Hillman's

research team and previously used to assess Steven Tyler for the National Geographic Channel documentary.

The events related to Mr. Vitale's voice surgery were covered extensively in sports pages throughout the country including the New York Times, Associated Press, and USA today. Zeitels was described by Vitale as "the Tom Brady of the voice surgery." □

In the year 2007 alone, the MGH Research team, largely supported by the ILVR, produced over a dozen original publications each contributing to the advancement of the field of laryngology and voice restoration.

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Since its inception in 2003, ILVR has grown to become one of the world's most significant contributors to the field of laryngology and voice restoration.

More than ten million dollars donated by individuals and organizations has been used to support innovative research, education, and clinical programs; substantially more funding has been earmarked for continued advancements.

We could not achieve our goals without you.

Thank you.

The Institute of Laryngology and Voice Restoration (ILVR) is an independent, 501(c)(3) nonprofit corporation founded in 2003. The ILVR is dedicated to advancing laryngology and voice restoration through sponsoring innovative basic and translational research as well as promoting education and outreach programs.

PROGRAMS AND ACTIVITIES

- Fund on-going multidisciplinary research at world-class institutions leading to the initiation of clinical trials in laryngological surgical interventions in voice care and restoration.
- Sponsor fellowships for both clinical and research fellows in laryngology.
- Sponsor training for doctoral and postdoctoral scientists interested in voice-related sciences.
- Develop educational materials and programs for medical and health professionals and the general public in order to increase awareness and disseminate information about current developments in laryngology.

ILVR OFFICERS

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Ways in which **YOU** *can help*

END VOICE DISORDERS

- ✓ Listen to the voice of your friends, colleagues and loved ones. If you know someone who seems hoarse for more than a few weeks, suggest they see a doctor.
- ✓ Raise awareness among family and friends about the importance of laryngeal and voice disorders.
- ✓ Share your story for a future publication.
- ✓ Provide a donation to the ILVR's research, education and outreach programs. Your gift now will protect and restore the voices of tomorrow.

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