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SERIES

SCARRING OF THE AIRWAY-Finding ways to help patients breathe easier.

PATRICIA HEBDA, PHD
*Director of Ear, Nose and Throat, Wound Healing Research Program
Department of Pediatric Otolaryngology, Children's Hospital of Pittsburgh of UPMC*

Mon., 9/14, 5:00 p.m.
Eye and Ear Institute
203 Lothrop Street
Pittsburgh, PA 15213

Following the presentation, facilities tours are available.

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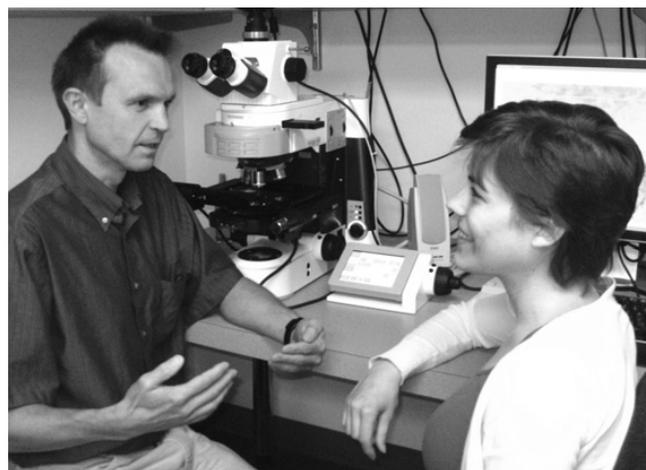
RESEARCHING TINNITUS – CATCHING THE PHANTOM NOISE

BY KARL KANDLER, PHD

Almost all of us have heard phantom sounds like ringing, buzzing, or hissing in the ears. This sensation of sound without the actual presence of sound is a common condition called tinnitus. For some individuals, it only lasts a few minutes or hours. However, for approximately 12-15 million people in the United States, tinnitus occurs so frequently or with such intensity that it becomes a stressful or even debilitating condition. It can decrease one's ability to concentrate or fall asleep and can interfere with interpersonal relationships or many other daily activities. Consequently, patients with severe tinnitus often become depressed and anxiety-ridden.

While many scientists are working to pinpoint its origins and while many sources, including some medications, can cause or worsen the condition, tinnitus most commonly occurs with hearing loss that may result from noise exposure or aging. With increasing noise levels in our society, the recent proliferation of MP3 players, and an increase in the average age of our population, most doctors and researchers predict that hearing loss and tinnitus will rise at alarming rates in the coming years. For many soldiers fighting in Iraq and Afghanistan this has already become reality. In 2006, the Department of Veterans Affairs reported nearly 400,000 veterans on service-connected tinnitus disability. Since 2007, tinnitus has become the number one service-connected disability for returning veterans. Walter Reed Army Medical Center recently found that 49 percent of soldiers exposed to Improvised Explosive Devices (IEDs) during their service overseas suffer from tinnitus. In 2007 though, less than \$4 million was committed to tinnitus research.

Like other centrally-generated phantom pains, tinnitus is produced directly in the brain, not the ear. Thus, a tinnitus patient experiences



Pitt grad student Amanda Klause (Center for Neuroscience) has worked with Dr. Karl Kandler since 2006.

“ringing in the brain” rather than “ringing in the ear.” The newly formed Center for Auditory Research of the Eye & Ear Institute’s Department of Otolaryngology is focused on identifying exact biological changes in the brain that cause this, and developing new strategies for prevention, treatment and ultimately a cure. As the Director of Auditory Research and Associate Professor for Otolaryngology and Neurobiology, I spearhead this Center and its Auditory Research Group.

During the last 20 years of my career I have researched how nerve cells and their connections in the brain change during development and after certain experiences. These processes, called plasticity, form new memories, erase old information, and generally allow the brain to adapt to our changing environments. Hearing loss deprives the brain of normal auditory inputs — plasticity is induced so the brain can adapt and in most cases, everything goes well. However, sometimes and for reasons we do not fully understand yet, the brain seems to over



Grateful patient Joanne Gump (right) with her daughter Tara sees clearly after Eye & Ear physicians removed a tumor through a minimally-invasive procedure.

FOREVER GRATEFUL: JOANNE GUMP'S REMARKABLE EYE & EAR STORY

BY JOANNE GUMP, PATIENT

Dear Friends of Eye & Ear Foundation: In early 2007, I began having a lot of difficulty with my vision. I felt my glasses may have been causing this, so I sought out my optometrist on March 16 to see what the problem might be. After many routine eye tests, he was concerned--he could not find the answer but something was definitely very wrong. He recommended I see a retina specialist in our area. I agreed but was very scared. Around that time, a friend encouraged me to call the Eye & Ear Institute to find out if they could see me immediately.

My first appointment was on March 21 with Dr. Gabrielle Bonhomme, a neuro-ophthalmologist. I spent the entire day undergoing numerous tests, and there were still more tests to do. On March 23, I returned for an MRI. The MRI showed a large tumor on my pituitary gland pressing on the optic nerve, causing my vision to become increasingly diminished. I was very shaken by this but Dr. Bonhomme sat with my husband and me to show us the pictures and explain her findings. She assured me that there was a wonderful team of neurosurgeons at UPMC who did surgery on such tumors and that she had contacted them about my case. I was admitted to the hospital and on March 29, my tumor was successfully removed through an endoscopic endonasal approach that doctors at UPMC pioneered. This procedure removed the tumor through my nose, avoiding having to cut through my skull. I was told that had I waited

We are so fortunate to have this wonderful facility and such remarkably talented people so close at hand.

We are so fortunate to have this wonderful facility and such remarkably talented people so close at hand. They will forever have a special place in my heart. – **Joanne Gump**

Mrs. Gump shared her Eye & Ear story at our secure Website. You can share your story too or make a gift to the Eye & Ear Foundation today at, www.eyear.org. For more information on how your gift makes a difference, contact 412-383-8756 or info@eyear.org.

NATIONAL EXPERTS DECLARE DEPARTMENT OF OPHTHALMOLOGY EXCELLENT



In June, Todd Margolis, MD, PhD, Michael Gilmore, PhD, and Sally Atherton, PhD served as the committee of ophthalmology research experts that met for a review of the Department of Ophthalmology. Department leadership and faculty presented on the last year's initiatives and various research projects. In the words of Dr. Margolis, "the research programs of the Department of Ophthalmology are of exceptionally high quality. The leadership is superb, and there is a terrific group of young investigators being appropriately groomed for the future." The challenge identified by the committee is increasing philanthropic support to enhance the department's growth and ensure continued excellence.

To learn how you can help, contact 412.383.8756 or info@eyear.org.



LEADING CORNEAL SCIENCE

James Funderburgh, PhD, recently published findings from stem cell research that shows the potential to cure corneal blindness with a simple stem cell injection. Corneal scars can occur as the result of disease, accident or injury, but these studies show that stem cells already present in the adult human eye could be used to return corneal tissue to its correct structure and transparency, without triggering rejection that sometimes occurs with transplants. Under the auspices of the Louis J. Fox Center for Vision Restoration of UPMC and the University of Pittsburgh, Dr. Funderburgh is preparing for research steps leading to human clinical trials, which will require new funding and laboratory space.

GIVING BACK, LOOKING FORWARD

COMPILED BY EYE & EAR FOUNDATION STAFF

With a connection to the University of Pittsburgh School of Medicine and Eye & Ear dating back nearly 40 years, E. Ronald Salvitti, MD has given back to both organizations in many ways including his leadership as chief ophthalmology resident, volunteer faculty instructor, and loyal donor. With his recent gift of more than \$1.5 million, Dr. Salvitti named the E. Ronald Salvitti, MD Chair in Ophthalmology Research.

“I chose to make a leadership gift not only to provide financial support but also to inspire others to give. I am dedicated to making a difference for people with vision problems. I built a successful practice that allows me, my daughter, Dr. Jennifer Davis, and my associates to provide excellent care for our patients. I have always maintained a keen interest in education and research and believe that the best way to advance patient care is by investing in the future of the field, in educating up-and-coming physicians, and in research that will reveal new understanding.” According to Dr. Salvitti, “Endowing a chair in ophthalmology research was the best way to accomplish that. My gift will provide stability and flexibility and will allow a faculty member to pursue innovative teaching, clinical, and scientific activities for which other funding sources are not available.”

“The Department of Ophthalmology is a national focal point with fundamental expertise in vision research,” said Joel Schuman, MD, FACS, chairman, Department of Ophthalmology, and holder of the Eye & Ear Foundation Chair. “By endowing a chair in ophthalmology research, Dr. Salvitti has provided a vital tool for attracting and retaining a high level of leadership that will strengthen our efforts as we, in cooperation with the McGowan Institute for Regenerative Medicine, establish The Center for Vision Restoration—the first national, comprehensive, multi-disciplinary research and clinical program dedicated to ocular regenerative medicine.”

Research, education, and patient-care pursuits benefit from the financial stability provided by named endowments, which can be established with gifts of \$100,000 or more. Income annually distributed from an endowment—currently 5 percent of assets—can provide salary support, research tools, and educational resources. Distributions that act as seed funding for innovative projects can be leveraged later to



E. Ronald Salvitti, MD

garner support from other sources, such as the National Institutes of Health.

For more information on named endowed opportunities or to make a gift to Eye & Ear Foundation in support of ophthalmology research, please call 412-383-8756 or email info@eyeandear.org.

E. Ronald Salvitti

E. Ronald Salvitti, MD has been an active member of southwestern Pennsylvania’s medical community since 1964 when he entered family practice in Washington, PA. After completing his residency in ophthalmology at University of Pittsburgh School of Medicine and Eye & Ear Hospital in 1973, he devoted his career to advancing ophthalmic surgery and patient care. In 1986, he became the founder and medical director of the Southwestern Pennsylvania Eye Center, where his staff now includes his daughter, Jennifer Salvitti Davis, MD, who also completed her ophthalmology residency at University of Pittsburgh School of Medicine and UPMC Eye Center, Eye & Ear Institute.

Dr. Salvitti is widely known as an innovator in ophthalmic surgery, designing intraocular lenses for cataract surgery that have changed the lives of his patients and many others. He has taught various courses in eye surgery and has lectured in 25 states and 2 countries.

VISIONARY PARTNERSHIP

BY LAUREN WALLY

Vision impairment is one of the ten most frequent causes of disability in America, providing powerful motivation to advance vision rehabilitation. There is a growing need in the United States, and the world, for improvements in the quality of care for individuals with low or no vision. Whether the impairment is the result of disease or trauma, the needs of patients are poorly addressed based on the current state of patient care. Impairments represent a significant burden on families coupled with genuine loss of human potential for the community and workplace.

UPMC Eye Center and the McGowan Institute for Regenerative Medicine are joining their expertise to create the first national, comprehensive, multi-disciplinary research and clinical program dedicated to vision restoration.

At a press conference on June 18, leaders announced the establishment of the Louis J. Fox Center for Vision Restoration of UPMC and the University of Pittsburgh. Eye & Ear Foundation donors, community leaders, and officials from UPMC and Pitt and other guests, joined to celebrate the announcement of a \$3 million naming gift from Pennsylvania native and Pitt alumnus Louis Fox, a retired commodity merchant banker and trader. With his gift, Mr. Fox provides necessary start up funding to seed the Fox Center's mission to discover cures for blindness and vision impairments. UPMC is matching Mr. Fox's gift dollar for dollar and has pledged to extend the match to every donation benefiting the Fox Center for Vision Restoration.

Mr. Fox became interested in vision restoration when 10 years ago he was diagnosed with central retinal vein occlusion — an incurable condition caused by blood vessel obstruction in his right eye. Mr. Fox, an extremely active man, had to give up many things that he loved — driving, flying his own airplane, among other things. Tragically, the same condition occurred in his left eye. Finding a cure became his mission.

“My heartfelt desire is that my contribution speeds the discovery and development of therapies that will make it possible for people to see again,” says Mr. Fox.

The press conference also gave Major General



Louis J. Fox

(ret.) Mike Jernigan, who lost both eyes and suffered other severe injuries in an IED explosion during a tour of Iraq in 2004, demonstrated the BrainPort device, which captures images on a digital camera mounted to sunglasses and sends the electrical signal to sensors on the tongue. When General Pollock asked “Mike, what do you see?” the Corporal was able to identify specific white shapes placed randomly on a black background, responding, “It feels like a horizontal line.”

The audience watched this incredible technology in awe. Corporal Jernigan is the only person to have first hand, every day experience with BrainPort on an extended basis.

“By approaching the issue of vision loss in partnership with colleagues at the McGowan Institute,” says Joel Schuman, MD, director, UPMC Eye Center and Eye & Ear Foundation Professor and Chair, Department of Ophthalmology, “we will bring new focus to problems affecting the retina, optic nerve, cornea and lens. Through studies of technology like BrainPort that provide vision substitution and longer-term research efforts like that of Jim Funderburgh, PhD, to understand the role of stem cells in clearing corneas, the Fox Center for Vision Restoration will pioneer comprehensive, patient-driven research and clinical therapies to treat people with no or limited sight.”

Amy Nau, OD, director of UPMC Eye Center's Contact Lens and Low Vision Services, will oversee studies to test BrainPort's capabilities. For more information, contact Chrissy Pintar at 412-864-3241.

If you'd like to support the research efforts of the Fox Center for Vision restoration and have your gift matched 1:1 by UPMC, please contact the Eye & Ear Foundation at 412-383-8756 or info@eyeandear.org.

(ret.) Gale Pollock, Executive Director of the Center, opportunity to showcase first-generation vision substitution technology, BrainPort, which is part of one of the initial Fox Center studies.

Marine Corps Corporal

“My heartfelt desire is that my contribution speeds the discovery and development of therapies that will make it possible for people to see again,” says Mr. Fox.

COOPERATIVE STRATEGY IN CARE: KENNETH VARGO'S EYE & EAR STORY

COMPILED BY EYE & EAR FOUNDATION STAFF



Physicians at the Eye & Ear work collaboratively to ensure the best possible care for conditions of the eye, ear, nose, throat, head and neck.

Mr. Vargo is particularly grateful that Dr. Nau seamlessly provided access to other world-class colleagues at UPMC Eye Center

In 2002, Kenneth Vargo needed an eye exam, which may not seem unusual. People visit optometrists or ophthalmologists every day for recommended, regularly scheduled eye exams. But Mr. Vargo, a liver transplant recipient, was beginning interferon therapy, which can cause damage to the retina that may result in blindness or severe vision loss or impairment. To monitor and preserve his eye health, Mr. Vargo knew he needed an eye care partner he could trust, so he turned to Amy Nau, OD and UPMC Eye Center at the Eye & Ear Institute.

“I have complex medical conditions,” says Mr. Vargo, “and while Dr. Nau always remains focused on the details of my health, she doesn’t see me as a problem to be solved. To her, I am a person in need of care.”

Mr. Vargo is particularly grateful that Dr. Nau seamlessly provided access to other world-class colleagues at UPMC Eye Center, referring him to Andrew Eller, MD and Thomas Friberg, MD for treatment for retinal tears and most recent-

ly to Alexa Lu, MD who is monitoring Mr. Vargo’s cataracts. Although his cataracts seem to be progressing, Mr. Vargo hopes to delay surgery until 2010 so that he can complete his interferon therapy.

While Mr. Vargo’s interferon therapy carries potential negative side effects for his vision, it has also given him the energy and ability to return to activities he enjoys, including volunteering.

“I want to give back and support others who may be facing similar situations—to show them they have nothing to worry about.” Mr. Vargo adds, “UPMC Eye Center is one of the best centers of care in the country, and it is right here in Pittsburgh.”

If you would like to join Mr. Vargo in supporting the work of UPMC Eye Center with a gift to the Eye & Ear Foundation, please contact us at 412-383-8756 or info@eyeandear.org, or make a gift online today at our secure Website, www.eyeandear.org.



UPMC's Center for Audiology and Hearing Aids offers a wide array of programs for the prevention and treatment of hearing loss.

COMPREHENSIVE HEARING HEALTH CARE

BY CATHERINE V. PALMER, PHD, DIRECTOR, CENTER FOR AUDIOLOGY AND HEARING AIDS

Comprehensive hearing health care means providing patients with the combined services of Otolaryngology and Audiology. Otolaryngologists manage medically treatable conditions while audiologists manage permanent hearing loss, usually with some type of amplification device. At UPMC Center for Audiology and Hearing Aids, we offer individuals all of the diagnostic services needed to assess ear health and hearing ability along with all of the medical and non-medical hearing solutions available.

Noise-induced hearing loss is 100% preventable and whenever possible, we want to help people avoid it. Our Musicians' Hearing Center, for example, provides assessment, counseling, and hearing protection to individuals exposed to harmful levels of sound in their work and hobbies. We provide education and special hearing protection to instrumental teachers and students in the Pittsburgh Public Schools and many surrounding districts. Through this community outreach program, we encourage healthy hearing habits starting at a young age.

When hearing loss has already occurred though, it's essential to carefully provide amplification. The cornerstone of our hearing aid services is clinical research that allows us to better match technology to individual patient needs, thereby recommending the solution best suited for an individual's hearing loss and lifestyle.

The June 2009 Consumer Reports advised readers pursuing hearing aids to visit a medical office offering Otolaryngology and Audiology services. However, even with this advice, the process can be very confusing. That's why we offer three free classes — Understanding Your Hearing Loss, Understanding Hearing Aids, and Using the Telephone — to help people understand what to look for in hearing health care, hearing aids, and other assistive listening devices.

Here are a few tips to keep in mind:

In order to hear well in noise, you need to hear with both ears. Hearing loss in both ears means you will need a hearing aid for each ear. The brain is a better signal processor than any special hearing aid circuit, so two hearing aids are a better investment than special features in one hearing aid.

Hearing aids are tuned by being placed in your ear canal along with a microphone to measure the output of the device when soft, moderate, and loud sounds are presented. If your audiologist tunes your hearing aids correctly, you will not like them for the first week or so — that's to be expected. The brain must adapt to the new input and that requires exposure to the sound. When deciding to get amplification, make sure you have about two weeks to dedicate to adjusting to the new sounds you will hear.

The brain is not good at alternating between hearing two different ways so individuals who wear hearing aids part time generally are not successful. They continually struggle in noise and other difficult listening situations. Preparing yourself to be a full time user of amplification takes some effort, but is well worth the communication success you will achieve.

Our ongoing research efforts and public education programs are key to providing outstanding hearing health care — and donor support, whether financial contributions for our programs or donations to our hearing aid recycling program, makes it possible.

To give, contact us at 412-383-8756 or info@eyeandear.org, or visit our Website, www.eyeandear.org. To make an appointment at the Center for Audiology and Hearing Aids, call 412-647-2030, or 412-647-2400 for a free telephone hearing screening.

GIVING TO EYE & EAR IS EASIER THAN EVER!

Research in the Departments of Otolaryngology and Ophthalmology receives tremendous support from the National Institutes of Health.

However, federal budget cuts create serious funding gaps for research, education and care programs. Private support from grateful patients and friends of the Eye & Ear Foundation makes the crucial difference that allows research efforts to be completed 100 percent—the only way to advance treatment.

Our secure Website, www.eyeandear.org, makes it easier than ever for you to impact new science and new solutions.

Support the Departments of Ophthalmology or Otolaryngology in general, or specific purposes like the Fox Center for Vision Restoration. Or make an unrestricted gift to be used wherever it is needed most.

Give online today. Your gift makes all the difference.

SHARE THE GIFT OF HEARING

Recycle your used hearing aid and make a tax deductible gift. Any make or model, regardless of age, can be donated to the Hearing Aid Recycling Program.

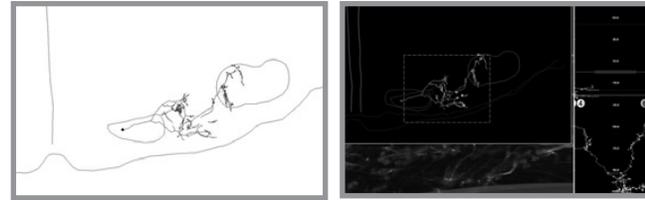
Please securely package the donation along with your name, address and telephone number and mail to:

The Eye & Ear
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Hearing Aid Recycling
Program
203 Lothrop Street,
S119 BST
Pittsburgh, PA 15213

Tinnitus continued from page 1

compensate, giving rise to phantom sounds. I am now applying my expertise in brain plasticity and rewiring to tinnitus research in order to figure out what goes wrong in these processes and why.

There is an outstanding team of researchers hard at work in the Auditory Research Group. We recently recruited Thanos Tzounopoulos, PhD, Assistant Professor in Otolaryngology and Neurobiology from the Chicago Medical School, along with Maria Rubio, PhD, Associate Professor for Physiology and Neurobiology from the University of Connecticut. Dr. Tzounopoulos's group looks at how experience changes the strength of auditory nerve connections, a mechanism which may produce tinnitus. Dr. Rubio's research explores the structure and protein composition of brain connections and how these are altered during plasticity and tinnitus. The group currently is looking for an expert to record electrical activity chronically in animals while tinnitus develops. Having this group of world-leaders in auditory research work so closely under one roof on a common



The Auditory Research Group traces the output process of a cell to learn how sound is sent from one part of the brain to another.

task is greatly accelerating our progress towards understanding this condition. Our interdisciplinary collaboration is encouraging new and out of the box approaches to treat and one day cure tinnitus for the 1 in 22 Americans who suffer from it.

To make an appointment for the Tinnitus Treatment Program at UPMC, call 412-647-2030. Or to learn how your support can make a difference in this research, call 412-383-8756 or visit our Website, www.eyeandear.org.

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OUR NEWSLETTER, PLEASE CONTACT
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