HOUGH EAR INSTITUTE

IN THIS ISSUE

From Our New Director of Development

Research Updates with Dr. West

New OUHSC Partnership

Summer Ear Health

Meet Justin De Moss, HEI's new Director of Development

Research Ramps Up with Dept. of Defense Grant

FROM OUR NEW DIRECTOR OF DEVELOPMENT

BY JUSTIN DE MOSS

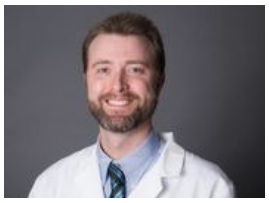
I am blessed and very excited to be joining such an amazing mission with a high caliber team at the Hough Ear Institute. From the research staff to the support staff – their dedication to the mission that all who have ears will hear is thrilling.

As I'm sure you know from all the updates these are exciting times at HEI. With the work being done, we are closer than ever to helping those with disabling hearing loss.

Imagine the joy of a grandparent hearing their grandchildren talk to them. Or a veteran hearing their child after suffering hearing loss due to combat. How about the person who has suffered trauma and regains their ability to have a conversation with their loved ones?

This is our mission, to restore hearing to those who desire it, and it is a bold one. I'm honored to be serving this mission and this team. I look forward to getting to know you and more about why this mission is important to you! Feel free to reach out to me any time.

RESEARCH UPDATE



NERVE INJURY SHEDS LIGHT ON TRAUMA

BY DR. MATTHEW WEST

Auditory traumas can occur in a variety of ways, causing variable degrees of hearing loss in their wake. However, in addition to the acute injury, the damage that ensues among the nerves that transmit information from the cochlea to the brain is often ongoing, and potentially progressive, long after the traumatic event. Using rodent models of noise- and blast-induced hearing loss, HEI researchers have recently discovered a clue as to how and why this ongoing nerve injury may emerge.

Following auditory trauma, nerve cells in the cochlea accumulate toxic proteins that form as a byproduct of the insult. Under ideal conditions, these toxic proteins are quickly sequestered and disposed of, using the cell's natural defense mechanisms. In some cases, however, certain types of toxic proteins escape this defense system and, if left unchecked, can wreak havoc for days, months, or even years thereafter. Using antibodies specific to these potential rogue elements, HEI researchers have demonstrated that insidious pathological variants of a normal cellular scaffolding protein called, Tau, tend to accumulate and persist for weeks in auditory nerve cells following a high-energy noise or blast exposure. These particular Tau variants are capable of recruiting healthy Tau proteins into dead-end complexes that act as "seeds" for spreading the damage from one nerve cell to another, often iteratively traveling long distances in the process. Consistent with this foreboding prospect, we have also observed time-dependent accumulation of toxic Tau variants in auditory centers of the brain weeks after a blast injury.

Although these findings have alarming implications, they also point to a potential new therapeutic target for short-circuiting progressive hearing loss. For instance, in related studies, the research team at HEI have discovered that our proprietary therapeutic antioxidant formulation significantly attenuated the accumulation of these toxic Tau variants in cochlear neurons, while markedly reducing the progressive hearing loss that was observed in untreated, blast-exposed rodents. The implications of these findings are far-reaching and may provide clinicians and researchers with a new strategy to treat hearing loss and related auditory disorders. As the accumulation of toxic Tau variants has also been shown to serve as a key factor in the development of other central nervous system disorders, such as Alzheimer's or Parkinson's disease, the ability to effectively interrupt the cycle of progressive Tau dysfunction caused by an auditory trauma may save more than just our hearing.

VIDEO UPDATES

If you haven't yet watched our videos, "The 2018 State of the Research" or the "Hearing Loss Simulator," you can check them out on YouTube.

NEWS INTERVIEW

Members of our team recently recorded video interviews with Jim Stafford and a team from OCAST (OK Center for Advancement of Science & Technology).

Stay tuned in to our social media for a link to the interview when it's published!

RECENT PUBLICATIONS

JUSTIN DE MOSS, M.A.

Justin De Moss is a seasoned development professional who has invested the last ten years in founding development programs, increasing and building major gifts, and in marketing. Justin utilizes his energetic leadership gift, combined with creativity, to develop strong relationships. These relationships have advanced the various nonprofits he has served with millions of dollars in additional funds to dedicate to their missions.

Prior to his work in the field of development, Justin worked as a branch manager of a Fortune 500 company and missionary for FOCUS, the Fellowship of Catholic University Students. Justin enjoys reading, teaching theology, cooking, and spending time with his wife and their six children. Justin ambitiously desires to build better communities and leave a legacy of transformed lives.

You can reach out to Justin via email at justin.demoss@houghear.org or by phone at 928-606-1929

SUMMER HEARING HEALTH

BY ANDREA FILLMORE

It seems as though most people have that vacation vibe and are ready to hang by the pool, tackle some lawn care projects, and get out and play. We want everyone to have the safest summer vacation possible, which is why we've compiled this list of Summer Ear Care Tips to keep you on your toes.

Use Sunblock - Don't miss the tops of those ears. Your ears are delicate, so be sure to slather them in a high SPF and reapply often.

Shake it Off - Take a quick second and let water drain out of ears after swimming. If bacteria mixes with that warm and wet environment you could be a candidate for Swimmer's Ear.

Beware the Machines - If you are working on the lawn, use hearing protection. Even an hour of a lawnmower or chainsaw noise can be harmful. And whatever you do, DON'T turn up headphones just to cover the noise. DO use hearing protection for all lawn projects and any environment where you'll be around loud machinery or equipment.

Stand Back - Proximity to loud noise plays a role in hearing loss. For that reason, stand back from fireworks this 4th of July and always wear hearing protection.

Do Not DIY - Hearing Health is not a DIY project for the summer. If something feels or sounds wrong go to a doctor. Don't wait until the pain is severe. Don't try to put anything foreign in your ears to troubleshoot. Go straight to a doctor to get checked out.

Turn Down Tunes - In-ear style headphones are a rising cause of hearing loss among young adults and is preventable. The problem is that earbuds push volume straight into the inner ear and high volumes can be dangerous to those tiny hair cells. Turn the volume down, and use over the ear or noise-cancelling headphones if possible.

Make it a Habit - Get your kids in the habit of wearing ear protection in sports and activities just like any other gear. Hearing loss is getting younger, so work to teach kids positive preventions.

We hope this list helps you stay safe, healthy, and happy as you enjoy all your summer fun. Remember, healthy ears are happy ears.

For more helpful articles like this, visit our website at www.houghear.org.

RECENT PUBLICATIONS

DEPARTMENT OF DEFENSE GRANT RAMPS UP RESEARCH EFFORTS

BY ANDREA FILLMORE

Earlier this year, we announced that Hough Ear Institute (HEI), in alliance with Otologic Pharmaceutics, Inc. (OPI), received the award of a Congressionally Directed Medical Research Programs (CDMRP) grant from the Department of Defense. The grant of will be used to further the preclinical research and development of an innovative therapy for the loss of hearing and equilibrium caused by a demise of sensory hair cells in the inner ear. OPI & HEI received the only funded award from among 73 applications in the Hearing Research Program.

The therapy, which was initially developed by HEI, uses small molecules and interfering nucleic acids to affect the regeneration of sensory hair cells within the cochlea. Trauma, ageing, infection and toxins are some of the factors that can contribute to a loss of sensory hair cells. A reduction in sensory hair cells has a detrimental effect on hearing and equilibrium and, once lost, hair cells do not spontaneously regenerate, creating a permanent impairment. In addition to aiding those who suffer from acute hearing and balance impairments stemming from sensory hair cell injury, this therapy has the potential to impact the tens of millions of people worldwide who live with chronic, age-related hearing loss (presbycusis), for which there are no approved treatments.

"We are very excited and grateful to have received this very competitive grant award," said Richard D. Kopke, MD, FACS, CEO of Hough Ear Institute. "Our research team is thrilled to advance a treatment that restores hearing to patients."

With the aid of this grant from the Department of Defense, our research has now moved into high gear. These CDMRP funds will be used to complete the preclinical trial testing and characterization of this innovative therapy.

With a military background in medicine, our founder and our CEO each have a passion to see this type of medical research and breakthrough aid the men and women who serve so faithfully in the protection of our freedoms. We are excited to partner with the government in the research and development of these treatments.

DR. HOUGH SERVED AS A SURGEON IN THE MARINE CORPS AND WAS ACTIVE DURING WWII. HE FOUGHT ON THE SHORES OF IWO JIMA AND LATER RECEIVED THE BRONZE STAR FOR HIS SERVICE.

40% - 60% OF DEPLOYED TROOPS RETURN WITH NOISE-INDUCED HEARING LOSS

1.5 MILLION VETERANS ARE ON A SERVICE-CONNECTED DISABILITY RELATED TO TINNITUS

APPROX. 78,000 VETS SUFFER FROM HEARING LOSS; APPROX. 94,000 SUFFER FROM TINNITUS

THE V.A. SPENDS OVER $1 BILLION IN DISABILITY AID AND ESTIMATES A GROWTH OF 18% ANNUALLY