

IN THIS ISSUE

FEATURE STORY

- ▶1 Research on Balance Therapy Goes Virtual

RECENT RESEARCH AND NEWS

- ▶4 NIDCD to Commemorate 20th Anniversary with Day of Science and Celebration of Human Communication
- ▶4 NIDCD Grantee Elected to National Academy of Sciences Governing Council
- ▶5 NIDCD Scientist Receives AAA President's Award
- ▶5 NIDCD Grantees Present Work at Association for Research in Otolaryngology Meeting

NIDCD HIGHLIGHTS

- ▶6 Multicenter Clinical Trial Compares Effectiveness, Side Effects of Common Treatments for Sudden Deafness
- ▶7 Special Cells Intercept Irritating Smells
- ▶8 Zebrafish as Screening Tool for Genes, Drugs that Protect Against Hearing Loss
- ▶8 Brain Images Offer Picture of Creativity

GRANTS NEWS

- ▶8 NIDCD Announces Supplemental Awards Program to Launch Careers of Otolaryngologist-Investigators

MEETINGS AND EVENTS OF INTEREST

- ▶10 BEYOND NIDCD: NEWS FROM OTHER ORGANIZATIONS

NEW RESOURCES

- ▶11 New Web Site and Updated Fact Sheet on Usher Syndrome Available
- ▶11 Updated Hearing Statistics Now Available

Feature Story

Research on Balance Therapy Goes Virtual

Virtual Grocery Store Could be New Model for Therapy

By Linda Joy

Adrenaline junkies crave it—the thrill of zooming around curves, up and down hills, and being a tad off balance—and virtual reality games have become an easy way to simulate those sensations. Now an innovative research project is harnessing virtual reality technology, particularly its ability to challenge one's sense of equilibrium, as a potential therapy for people with balance disorders and chronic dizziness.

With a grant from NIDCD, University of Pittsburgh Medical Center (UPMC) researchers have established a Medical Virtual Reality Center to study how people maintain balance and to identify potential therapies for balance problems. Their studies are advancing the understanding of balance, including components of good balance and factors that lead to poor balance.

The centerpiece of the Medical Virtual Reality Center is a virtual reality grocery store to test a new model for balance rehabilitation. A custom-built treadmill and four computer-controlled projection systems simulate grocery store aisles that range from visually simple (think white paper goods) to daunting (imagine pain relievers, vitamins, and allergy remedies). A person walking on the treadmill controls his or her own speed up the aisle and turns down the next aisle by pushing on one side of a real shopping cart adapted for the facility.

The idea is that individuals with dizziness and balance problems can lessen their symptoms over several weeks by practicing for at least an hour per week at increasingly complex tasks in the virtual grocery store, explains Susan Whitney, Ph.D., associate professor of physical therapy at



University of Pittsburgh virtual reality grocery store simulates the challenge of shopping for people who have balance disorders. Photo courtesy of the University of Pittsburgh Medical Center.

the University of Pittsburgh School of Health and Rehabilitation Sciences.

Clinical trials are underway, and although results are not in, researchers are optimistic. "It appears that people who are bothered by motion get better," she says.

Dizziness Impacts Millions

Millions of Americans experience balance and dizziness problems. Good balance relies on three separate senses working harmoniously together: the inner ear, vision, and feedback from muscles and joints on body position. Problems in any one of these systems can result in a balance disorder.

(continued on page 2)

To add your name to
our e-mail list, visit
www.nidcd.nih.gov/health/inside/



Photo: ©jupiter images

There are more than a dozen different diagnosable balance disorders that together affect millions of Americans at some point in their lives, most commonly in older age.

More than a quarter of people between ages 65 and 74 experienced dizziness or difficulty with balance in a 12-month period, according to data from a national public health survey.

People who have balance disorders tend to avoid situations that provoke their symptoms. Certain visual cues combined with motion and head turning can make a person feel unbalanced and dizzy or that they are falling or spinning, explains Dr. Whitney. For some, facing such situations, like a grocery store's dizzying array of products and crowds of shoppers, can become anxiety-filled experiences.

Therapy in the virtual reality grocery store seeks to address both the physical and emotional aspects of balance disorders in a controlled environment. "What we're doing here is physical and behavioral therapy. We expose people to gradually more complex scenes," says Dr. Whitney.

The patients' ability to control their own speed and discontinue the session if symptoms occur serves to lessen anxiety and fear, Dr. Whitney explains. Then practice at various assigned tasks in the virtual store helps improve their ability to balance and restore confidence. "They seem to get a lot less dizzy," she says.

Seizing a New Opportunity: Medical Virtual Reality

The idea to use a device like a treadmill for balance rehabilitation first came up in a brainstorming session among Joseph Furman, M.D., Ph.D., director of the Division of Balance Disorders at UPMC, Mark Redfern, Ph.D., professor

of bioengineering, and Dr. Whitney a couple of decades ago, she recalls. Dr. Furman asked her what piece of equipment might be most helpful. She replied that patients might benefit from practice on an airport-style moving walkway. Installing such a device was impractical though, until virtual reality came along.

UPMC received NIDCD funding for the Medical Virtual Reality Center in 2001. About a dozen UPMC researchers collaborate on a variety of studies at the center, which accommodates experiments beyond the virtual grocery store. The researchers chose to create a virtual reality grocery store since so many of the people they treat for balance disorders find grocery shopping to be challenging and anxiety-provoking.

Careful attention went into designing the projection system, which casts images of a supermarket floor and product-filled shelves to the front and sides of the treadmill. In addition, the custom treadmill is wider than most to accommodate people who may not be able to walk in a straight line. The treadmill is regularly moved out of the virtual reality space to allow for studies that have participants stand in place.

Art Institute of Pittsburgh students Jacob Galito and Anton Kozlov, working under the direction of Patrick Sparto, Ph.D., associate professor of physical therapy, have helped give the virtual grocery store a realistic appearance. Mr. Kozlov is currently working to add avatars—computer generated shoppers—and obstacles, such as boxes and displays, that one might encounter on an actual shopping trip.

The aisles in the virtual store become progressively more challenging as a person successfully navigates from one to the next. In balance therapy sessions, people try to locate a product beginning with easy tasks such as finding paper towels in the paper goods aisle. They work their way towards more complex, visually challenging tasks such as finding a small, colorful spice jar amid scores of baking ingredients.

The facility is unique in the United States, and Dr. Whitney knows of only one other virtual grocery store for balance rehabilitation in the world—at the University of Haifa in Israel.

(continued on page 3)

Research

To help assess the effectiveness of virtual reality therapy, Dr. Whitney is currently conducting a clinical trial with people who experience dizziness and balance problems. The participants are randomly assigned to one of two groups for six weeks of treatment. One group will work on increasingly difficult tasks in the virtual grocery store for at least one hour per week. The other group will perform traditional balance therapy exercises designed to improve strength, posture, gait, and other components of balance, as well as to avoid falls. To avoid bias in the results, the pre- and post-treatment testing is conducted by a physical therapist who does not know, or is "blinded" to, the type of treatment the participants received.

Earlier research tested the safety of virtual reality balance therapy on healthy volunteers. Dr. Whitney and other UPMC researchers have gathered extensive data on how people respond to the virtual reality grocery store. They have observed people with and without balance disorders standing in or walking in the store's aisles. They have also studied the responses of various age groups from children to older adults. They have tracked

the speed of eye and head movements and distance traveled as people try to locate a product. These measurements help create a picture of the range of responses in people with good and poor balance.

If clinical trials show promising results, Dr. Whitney says, the next step would be to work on developing a plug-and-play version of the virtual reality grocery store for practical use in a physical therapy clinic or at home. Since setting up a costly treadmill and projection system would be beyond the means of clinics, Dr. Whitney envisions a head-mounted visor system, similar to commercial gaming systems, to recreate the virtual grocery store experience.

The device could keep track of an individual's progress, she says. People using the system at home, under a therapist's guidance, could also be motivated by higher scores as they improve. "The idea is that if it's more fun, people work harder. The chance of having compliance and overcoming anxiety is better."

Visit the University of Pittsburgh Medical Center's virtual grocery store at: www.mvrc.pitt.edu/facility_balance.html.

In balance therapy sessions, people try to locate a product beginning with easy tasks such as finding paper towels in the paper goods aisle. They work their way towards more complex, visually challenging tasks such as finding a small, colorful spice jar amid scores of baking ingredients.

Recent Research and News

NIDCD to Commemorate 20th Anniversary with Day of Science and Celebration of Human Communication

NIDCD will be celebrating its 20th anniversary on Thursday, Oct. 23, 2008, with a symposium highlighting two decades of scientific research accomplishments supported by the NIDCD. The program begins at 8:30 a.m. at the Natcher Conference Center on the campus of the National Institutes of Health in Bethesda, Md.

CELEBRATING 20 YEARS OF RESEARCH 1988–2008



National Institute on Deafness and Other Communication Disorders

The symposium will consist of three sessions representing NIDCD's primary areas of research: hearing and balance; smell and taste; and voice, speech, and language. The tentative agenda includes NIDCD advisory council member Karen Cruickshanks, Ph.D., professor of population health sciences at the University of Wisconsin, who will speak on NIDCD's public health impact.

In addition, John Niparko, M.D., professor of otolaryngology-head and neck surgery at Johns Hopkins University School of Medicine, and David Corey, Ph.D., professor of neurobiology at Harvard University, will speak on hearing and balance research.

Gary Beauchamp, Ph.D., director of the Monell Chemical Senses Center, and Richard Axel, M.D., of Columbia University, a recipient of the 2004 Nobel Prize in Physiology or Medicine for research on the sense of smell, will speak on smell and taste research.

Robert Remez, Ph.D., professor of psychology at Columbia University, and Helen Tager-Flusberg, Ph.D., professor of anatomy and neurobiology and psychology at Boston University School of Medicine, will speak on voice, speech, and language research.

Plans are also underway to include music and performances highlighting areas of communication covered by NIDCD.

Expected attendees include NIH staff members, scientists from around the country, advocacy organization members, congressional representatives, and news media members. NIDCD will be posting registration information on its Web site, www.nidcd.nih.gov, soon.

NIDCD Grantee Elected to National Academy of Sciences Governing Council



NIDCD grantee Linda M. Bartoshuk, Ph.D., was recently elected to the National Academy of Sciences Governing Council.

NIDCD grantee Linda M. Bartoshuk, Ph.D., professor of community dentistry and behavioral science, University of Florida, recently was elected to the governing council of the National Academy of Sciences. She will be representing the disciplines of anthropology, psychology, social and political sciences, and economic sciences on the council. Her three-year term is effective July 1, 2008.

Dr. Bartoshuk studies genetic variation in such areas as taste perception, oral pain, and taste disorders. She is best known for her work on supertasters, people who are born with an unusually large number of taste buds, and their risk for some oral pain disorders. She also studies the links between oral sensation and behavior in normal subjects, as well as in patients with taste or oral pain disorders.

(continued on page 5)

Plans are also underway to include music and performances highlighting areas of communication covered by NIDCD.

Dr. Brewer is currently the lead investigator on a study of twins to learn more about the genetics behind age-related hearing loss, or presbycusis.

In 2003, Dr. Bartoshuk was inducted as a member of the National Academy of Sciences, one of the highest honors that can be accorded a scientist or engineer. The academy is a private, nonprofit institution, established in 1863 by President Abraham Lincoln to “investigate, examine, experiment, and report upon any subject of science or art.”

NIDCD Scientist Receives AAA President’s Award



NIDCD researcher Carmen Brewer, Ph.D., recently received the American Academy of Audiology President’s Award.

Carmen Brewer, Ph.D., chief of audiology in NIDCD’s Otolaryngology Branch, is the recipient of the American Academy of Audiology’s (AAA’s) 2008 President’s Award. The award was presented in April at AAA’s annual convention, Audiology-Now!, in Charlotte, NC.

In presenting the award, AAA president Alison Grimes cited Dr. Brewer’s exemplary service throughout her term as board member, as well as her innumerable volunteer positions on various task forces. The award, which is presented at the president’s discretion, was given “in grateful appreciation for her significant contributions” to the academy and the profession.

Dr. Brewer is currently the lead investigator on a study of twins to learn more about the genetics behind age-related hearing loss, or presbycusis. She has also studied twins to learn about the genetic nature of auditory processing disorders.

As an associate investigator for several trans-NIH studies she works in the evaluation of auditory and vestibular phenotypes.

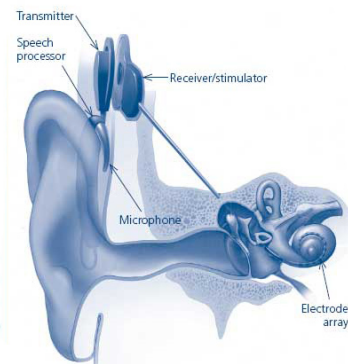
NIDCD Grantees Present Work at Association for Research in Otolaryngology Meeting

Many NIDCD-supported scientists delivered presentations at the Midwinter Meeting of the Association for Research in Otolaryngology in Phoenix last February. Among them were Jay Rubinstein, M.D., Ph.D., of the University of Washington, and Avinash D.S. Bala, Ph.D., of the University of Oregon.

Beyond Words—Helping Cochlear Implant Wearers Listen to the Music

Dr. Rubinstein led a session on a tool he and colleagues have developed to help clinicians assess a cochlear implant wearer’s ability to discern pitch progression, melody, and different types of musical instruments. Cochlear implants have brought a sense of sound to more than 100,000 deaf and hard-of-hearing people worldwide, yet music perception remains a source of frustration for many implant users. To better understand this problem, Dr. Rubinstein’s team developed the Clinical Assessment of Music Perception (CAMP) test, an easy-to-use computer tool. He presented data from a commercially funded multicenter study, plus results from additional research in his laboratory, in which CAMP was used to assess music perception in people who wear cochlear implants.

Ear with cochlear implant



Credit: Medical illustrations by NIH, Medical Arts & Photography Branch.
www.nidcd.nih.gov/health/hearing/coch.asp

(continued on page 6)



Photo: Cornell Lab of Ornithology/Michael J. Hopiak

Seeing Is Believing—How the Eyes May Help Reveal Hearing Loss

Can an eye exam reveal hearing loss? Dr. Bala and colleagues presented data that suggest it can. In previous studies, they demonstrated that the pupils of barn owls dilate in a reliable and distinctive way in response to a sound's loudness, pitch, or location. In this study, the researchers evaluated whether this same response—called the pupillary dilation response (PDR)—may be an effective tool for measuring hearing loss in people. The researchers had volunteers listen to sounds of varying loudness and frequency and

compared PDR measurements with traditional measurements in which subjects indicated detection with a yes or no response. They found that the values were similar to one another, indicating that the PDR approaches the sensitivity of traditional hearing tests. Since PDR does not require a person to indicate whether he or she heard a sound, it might be useful for those who are too young or physically unable to respond.

Read more about NIDCD grantees' presentations at the ARO meeting at www.nidcd.nih.gov/news/releases/08/02_13_08.htm.

NIDCD Highlights

Multicenter Clinical Trial Compares Effectiveness, Side Effects of Common Treatments for Sudden Deafness

NIDCD-funded scientists at the Massachusetts Eye and Ear Infirmary (MEEI), and 15 other sites around the United States, are conducting the largest effort to date to compare two popular treatments for a form of hearing loss that strikes suddenly and that is potentially curable if treated early.

The study, led by Steven D. Rauch, M.D., compares the effectiveness and possible side effects of corticosteroids taken orally or injected directly into the ear for the treatment of sudden sensorineural hearing loss, or SSHL.

"We want to know if both treatments are equally effective in the treatment of sudden deafness. If they are, then we want to look at the side effects to determine which one is more beneficial for patients," says Dr. Rauch.

Sudden sensorineural hearing loss refers to a rapid loss of hearing, generally in one ear, that can happen all at once or over a period of a few days. The cause is unknown. People may first notice the hearing loss when they wake up in the morning, while using the phone, or after an alarming "pop" occurs. According to Dr. Rauch, SSHL symptoms are similar to common hearing problems that cause ear blockage, such as water in the ear or earwax build-up. Other symptoms may include ringing in the ear (tinnitus), dizziness, or vertigo.

Dr. Rauch and his team hope to raise awareness about SSHL among the emergency medical community, since this condition can frequently be overlooked as a possible diagnosis.

Although most forms of sensorineural hearing loss are irreversible, SSHL is potentially curable if treated early, generally within two weeks of discovering the hearing loss. Steroids are the most common treatment for SSHL, but researchers do not know which method is more effective—taken orally or injected directly into the ear.

To help address this question, researchers are recruiting volunteers, 18 years and older, who have inexplicably experienced hearing loss in one ear. To be eligible, the patient would need to be enrolled in the study within two weeks of experiencing a first-time hearing loss. Enrolled patients will be randomly assigned to receive one of two commonly used treatments: a high dose of oral steroids taken daily for two weeks, then tapering off over several days, or steroid injections in the ear twice each week for two weeks.

In addition to finding the most effective treatment for SSHL, Dr. Rauch and his team hope to raise awareness about SSHL among the emergency medical community, since this condition can frequently be overlooked as a possible diagnosis.



Photo: ©jupiter images

"Patients generally don't worry enough when they experience these symptoms. Even if they do go to see their primary care physician, a hearing test may not be offered to them; they might miss the window of opportunity for treatment," says Dr. Rauch. "Primary care and emergency staff are generally not aware that SSHL is a medical emergency, and that patients need to see an otolaryngologist immediately," he says. An otolaryngologist is a physician who specializes in diseases of the ear, nose, and throat.

If you or someone you know suddenly develops difficulty hearing in one ear, Dr. Rauch recommends a simple test: humming out loud. If the hearing loss is due to earwax or congestion, you will hear your voice louder in the blocked ear. However, if the humming seems louder in your good ear, this could be a sign that you are experiencing SSHL in the affected side and you should contact an otolaryngologist immediately.

The study is being conducted in 16 medical centers in the United States and Canada, including:

- University of California, San Diego
- House Ear Institute, California
- University of Florida
- University of Iowa
- Johns Hopkins University
- Massachusetts Eye and Ear Infirmary
- University of Massachusetts Medical School
- University of Michigan
- Michigan Ear Institute
- Washington University School of Medicine
- New York University School of Medicine
- New York Eye and Ear Infirmary
- The Cleveland Clinic
- University of Texas Southwestern Medical Center
- Baylor College of Medicine
- University of Western Ontario, Canada.

Check www.meei.harvard.edu/research/trialstudies/ssnhl.php for more information about this study. A description of the protocol can be found here: www.clinicaltrials.gov/ct/show/NCT00097448?order=16. To read NIDCD's online fact sheet on sudden sensorineural hearing loss, go to www.nidcd.nih.gov/health/hearing/sudden.asp.

Special Cells Intercept Irritating Smells

Does cutting an onion bring you to tears? Scientists do not understand why certain smells, like onion, ammonia, and paint thinner, are so irritating, but a new NIDCD-funded study has uncovered an unexpected role for specific cells in the front of the nasal cavity.

Weihong Lin, Ph.D., of the University of Colorado Denver School of Medicine and University of Maryland, Baltimore County, led the study which discovered that a particular cell, abundant near the entry of many animal noses, plays a crucial and previously unknown role in transmitting irritating and potentially dangerous odors. Dr. Lin and colleagues from both universities plus the Mount Sinai School of Medicine identified the role of this solitary chemosensory cell in transmitting irritating chemical odors in the noses of mice. Their study appears in the March issue of the *Journal of Neurophysiology* (available for a fee from the journal at <http://jn.physiology.org/cgi/content/abstract/99/3/1451>).

Prior to this work, scientists who study smell and taste thought that irritating odors directly stimulated the trigeminal nerve, which senses touch, temperature, and pain throughout the head region, including the delicate membranes that line the inside of the nose. The research team, under the guidance of Diego Restrepo, Ph.D., found that solitary chemosensory cells scattered in the epithelium inside the front of the nose respond to high levels of irritating odors and relay signals to trigeminal nerve fibers.

Read the NIDCD news release at www.nidcd.nih.gov/news/releases/08/03_04_08.htm.

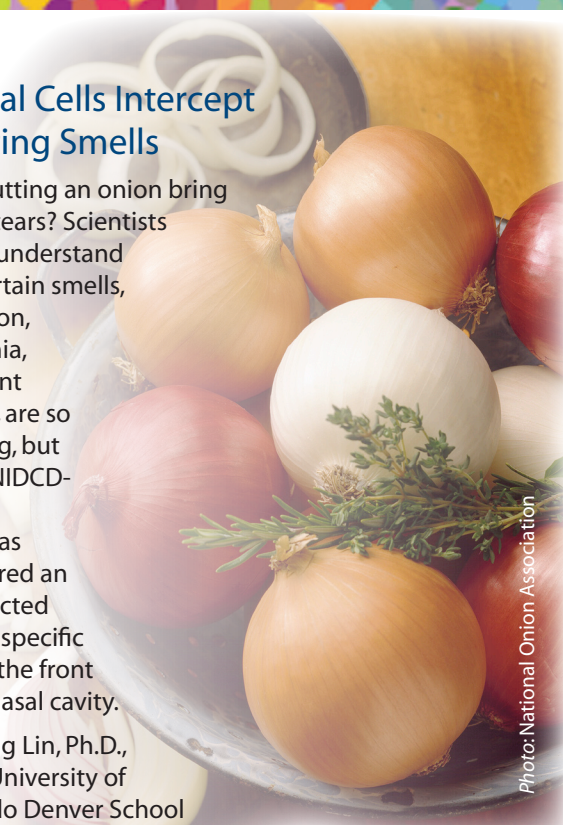


Photo: National Onion Association

Zebrafish as Screening Tool for Genes, Drugs that Protect Against Hearing Loss

A small striped fish is helping scientists understand what makes people susceptible to a common form of hearing loss. But, it's not the fish's ears that are of interest. In this case, scientists are relying on a zebrafish's lateral line—the faint line running down each side of the fish that enables it to sense its surroundings—to quickly screen for genes and chemical compounds that protect against hearing loss from some medications.

The study, conducted by senior scientists Edwin Rubel, Ph.D., David Raible, Ph.D., and their research team at the University of Washington, was published in the Feb. 29 issue of the journal *PLoS Genetics* (www.plosgenetics.org).

When people are exposed to some antibiotics and chemotherapy agents, the sensory structures in the inner ear, called hair cells, can be irreversibly damaged, resulting in hearing loss and balance problems. People vary widely in their susceptibility to these agents as well as to damage caused by other chemical agents, loud sounds, and aging. To find out why, the researchers developed a screening strategy that uses hair cells in the lateral line of zebrafish larvae to signal how hair cells in a

person's inner ear might respond under similar conditions.

Read the NIDCD news release at www.nidcd.nih.gov/news/releases/08/02_29_08.htm.

Brain Images Offer Picture of Creativity

NIDCD scientists recently enlisted the help of jazz musicians to reveal differences between brain activity during the creative act of improvising and the recitation of a melody from memory.

Their study, published in the Feb. 27 issue of the journal *PLoS One*, showed that when the musicians improvised, a large region of their brains involved in monitoring performance shut down, while a small region involved in organizing self-initiated thoughts and behaviors was highly active. The researchers propose that this and several related patterns are likely indicators of a brain that is engaged in creative thought.

Allen R. Braun, M.D., chief of the NIDCD Language Section, and Charles J. Limb, M.D., then an NIDCD research fellow, conducted the study. Dr. Limb is now an otolaryngologist at the Johns Hopkins University School of Medicine and faculty member at the university's Peabody Conservatory of Music.

Read the NIDCD news release at www.nidcd.nih.gov/news/releases/08/02_26_08.htm.



Photo Credit: ZFIN and Oregon Zebrafish Laboratories

Grants News

NIDCD Announces Supplemental Awards Program to Launch Careers of Otolaryngologist-Investigators

NIDCD has announced a new supplemental grant program to support the training of otolaryngologists with limited research backgrounds who are interested in pursuing a career trajectory including research on hearing, balance, smell, taste, voice, speech, or language. The goal of the program is to help these physician-researchers to compete favorably for larger scope NIDCD-sponsored awards, such as clinician-scientist career development awards and research project grant awards.

"NIDCD recognizes the urgent need to nurture well-trained otolaryngologist-researchers capable

of translating fundamental scientific discoveries into effective therapies, from bench-to bedside," said NIDCD's research training officer Daniel A. Sklare, Ph.D. "However, the rigorous surgical training that these physicians undergo over years of their residencies and fellowships has made it difficult for them to incorporate a research path into their careers."

To help address this issue, NIDCD has created two-year administrative research supplements for junior tenure-track faculty (and the equivalent positions in non-academic settings) in otolaryngology. Principal investigators or program directors with active NIDCD-supported R01 or P50 grants can apply for this supplemental grant on behalf of a candidate. The supplemental grant

NIDCD recognizes the urgent need to nurture well-trained otolaryngologist-researchers capable of translating fundamental scientific discoveries into effective therapies, from bench-to bedside.

Photo: Charles Limb/Johns Hopkins University

interfaces directly with the R01 or P50 award to enhance the candidate's research experience while allowing for the further refinement of his or her clinical skills. An eligible candidate for this program is a junior-level otolaryngologist interested in a career trajectory in fundamental, translational, or patient-oriented research in hearing, balance, smell, taste, voice, speech, or language, who has less than two years of full-time research training and experience in the biomedical or behavioral sciences. Recipients are eligible to receive up to \$100,000 in direct costs per year.

The next submission date for this administrative supplement program is Nov. 1, 2008. This initiative

is one of NIDCD's responses to the Conference on Research Education and Training in Otolaryngology, co-sponsored by the American Academy of Otolaryngology-Head and Neck Surgery Foundation and the NIDCD in late 2005.

For more information on NIDCD's research training and career development program, visit www.nidcd.nih.gov/research/training. Before submitting an application, principal investigators or program directors and their candidates are asked to contact Dr. Sklare to discuss their application by telephone (301-496-1804) or email: sklare@nidcd.nih.gov.

Meetings and Events of Interest

International Conference on Rare Diseases and Orphan Products

May 20-22

Washington, DC

This conference is sponsored by the NIH Office of Rare Diseases and the Karolinska Institute of Stockholm, Sweden. For information and to register, go to www.icord.se.

Voice Foundation's Annual Symposium: Care of the Professional Voice

May 28-June 1

Philadelphia, PA

Hundreds of medical and scientific experts, speech-language pathologists, performing artists, and teachers from all over the world will be present at this meeting. Papers presented here seek to educate the public and the scientific community about advances being made in voice science and care. For registration or more information see the Voice Foundation's Web site at www.voicefoundation.org.

Hearing Loss Association of America

June 12-15

Reno, NV

The Hearing Loss Association of America describes its convention as "a highly interactive and accessible event for all people who are affected by hearing loss." The program includes speakers, workshops, a research symposium, and exhibit hall.

See the conference Web site for more information at www.hearingloss.org/convention/index.asp.

International Conference on Cell Replacement in the Inner Ear

June 12-15

Bethesda, MD

The 2008 International Conference on Cell Replacement in the Inner Ear will serve as a forum to stimulate research in regeneration biology of the cochlea, vestibule, and primary neural pathways. Conference attendees will be exposed to the latest advances in regeneration research methods, both in the ear and in other systems, from investigators around the world. All potential methods to restore function will be discussed. The conference is open to all interested scientists, clinicians, and students. Visit www.drf.org to see the full conference program, speakers, and to register online or submit an abstract submission. The conference is sponsored by the Deafness Research Foundation, NIDCD, and the University of Washington.

National Stuttering Association

June 25-29

Parsippany, NJ

This annual conference for children, teens, parents, and professionals includes presentations on research, therapy, youth and family programs, and coping and management seminars. See the conference Web site for more information at www.nsastutter.org/content/index.php?catid=52.

Alexander Graham Bell Association for the Deaf and Hard of Hearing

June 27-30
Milwaukee, WI

The association's 48th biennial convention program includes six learning tracks, sessions, and social activities focusing on spoken language and listening skill development; professional development; a research symposium; and child and teen programs. See the conference Web site for more information at www.agbell.org/DesktopDefault.aspx?p=Convention.

2008 National Conference on Childhood Apraxia of Speech: Each One Matters

July 10-12
Williamsburg, VA

Sponsored by the Childhood Apraxia of Speech Association of North America, this conference is

for professionals, parents, and interested community members. Conference sessions cover speech therapy issues as well as all other aspects of language, development, literacy, education, instruction, and social-emotional goals of children with apraxia of speech. For more information, visit www.Apraxia-KIDS.org.

International Symposium on Olfaction and Taste (ISOT)

July 21-26
San Francisco, CA

The 15th ISOT, organized by the Association for Chemoreception Sciences, will bring together researchers from around the world to present and discuss the latest findings in the field of chemical senses. The program includes presentations, symposia, and poster sessions. See the conference Web site for more information at www.achems.org/i4a/pages/index.cfm?pageid=3493.

Beyond NIDCD: News from Other Organizations

May Is Better Hearing and Speech Month

The American Academy of Audiology has prepared resources in celebration of May as Better Hearing Month. For more information, visit www.audiology.org/best/betterhearingmonth.htm.

Resources are also available from the American Speech-Language-Hearing Association to recognize May as Better Hearing and Speech Month. Visit the ASHA Web site at www.asha.org/bhsm/default.htm.

Upcoming Stuttering Foundation Five-day Workshops

June 4-8
Boston, MA

Cognitive Approaches to Parent-Child Interaction Therapy—Participants will practice skills that are transferable to working with older children and families.

June 18-22
Philadelphia, PA

Treating Children and Adolescents Who Stutter—Participants will practice new skills and present their questions about how to work with clients who stutter.

Both five-day workshops are presented through lectures, small group activities, videotape demonstrations, and discussion. For more information, visit www.stutteringhelp.org.

Noise and Hearing Loss Brochure

Noise is all around us in our everyday environments and it is a common cause of hearing loss. This brochure from the American Academy of Audiology includes a useful "levels of noise" chart, as well as information on everyday noises and tips on protecting your hearing. Order this brochure through the AAA Web site at <http://www.audiology.org/publications/books/>.

New Chapters and Resources for People Who Stutter

New Chapters for Kids and Teens

With about 80 adult support chapters throughout the United States, the National Stuttering Association (NSA) has recently added support chapters for children and teens who stutter and their parents. NSA-Kids (ages 8-12) and NSA-TWST (Teens Who Stutter, ages 13-20) are designed to meet the special needs of kids and teens, their parents, and the speech-language pathologists who work with them.

Young Children Who Stutter

Written for parents, this comprehensive booklet describes the early signs of stuttering, provides an overview of what to expect in therapy, and explains how parents can help the child at home, emphasizing the importance of early intervention. Also available in Spanish.

Bullying and Teasing

This 116-page manual provides practical suggestions for helping children who stutter overcome the effects of teasing and bullying. The manual offers separate sections for parents, speech-language pathologists, teachers, school administrators, and children who stutter. It also contains an appendix of available children's literature on teasing and bullying in general.

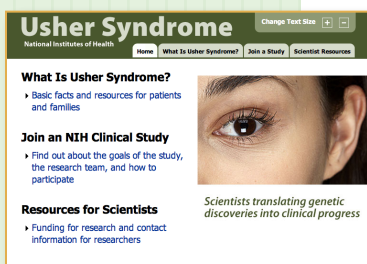
Information for Educators

This brochure informs teachers how to help students who stutter in the classroom by creating an atmosphere of acceptance and understanding.

For more information on how to obtain these resources, call the National Stuttering Association at 800-937-8888 or visit the NSA Web site at www.WeStutter.org.

New Resources

New Web Site and Updated Fact Sheet on Usher Syndrome Available



A new National Institutes of Health Web site on Usher syndrome is now online. Two components of NIH, NIDCD and the National Eye Institute, worked together to develop the site. Available at www.ushersyndrome.nih.gov, it offers basic facts and resources for patients and families, information on clinical studies, and resources for scientists.

The NIDCD fact sheet on Usher syndrome, the most common condition that affects both hearing and vision, is newly updated. It is available online at www.nidcd.nih.gov/health/hearing/usher.asp or in print. To request print copies, contact the NIDCD Information Clearinghouse by calling 800-241-1044 or sending an e-mail to nidcdinfo@nidcd.nih.gov.

Updated Hearing Statistics Now Available

A freshly revamped section of the NIDCD Web site offers new and updated statistics on hearing and ear disorders. Newly added are charts and tables on hearing and ear problems affecting people of all ages. References for scientific journal articles related to hearing epidemiology have also been added. A new special section, *An Epidemiological*

Perspective on Hearing: What the Numbers Mean, offers commentary by NIDCD grant recipient George Gates, M.D., of the University of Washington, and NIDCD epidemiologist Howard Hoffman.

The updated NIDCD statistics page is available online only at www.nidcd.nih.gov/health/statistics/hearing.asp.

